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Indexed in the Industrial Arts Index and
the Engineering Index. Published every
Thursday. Subscription Price United
States, its Territories and Canada \$8;
other Western Hemisphere Countries
\$15; Foreign Countries \$25 per year.
Single copy, 35c. Annual Review Num-
ber, \$2.00.

Cable Address, "Ironage" N. Y.

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Vol. 163, No. 18

May 5, 1949

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**NATIONAL
CUTLERY
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MAY 2 - 9th

100 E. 42nd ST., NEW YORK 17, N. Y.

ESTABLISHED 1855

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May 5, 1949

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Socialist Sappers

AMONG the tactics of the socialist planners, those half-way boys between freedom and communism, is the creation of conditions under which the institutions of a free society cannot function. This is followed by a clamor for nationalization on the ground that such institutions no longer perform adequately those services which the public interest requires.

The banks of the country and their treatment by the regulatory agencies of the federal government afford a striking illustration of this tactic. It has always been an elementary canon of sound banking that a certain fraction of a bank's assets be kept in liquid form to enable that bank to meet any unusual demands on the part of its depositors. The fraction of assets earmarked for this purpose is known as a bank's reserves. When the Federal Reserve Act was passed in 1913, the banks were required to carry reserves which averaged 10% of their demand and 3% of their time deposits.

This was considered adequate until 1936 when some of the bright boys in the antechambers of the White House conceived the idea of using these reserves to control credit, and, by controlling credit, to regulate the price level. By controlling the price level they would eliminate fluctuations in the business cycle. A great idea! Similar to the use of the public debt to stabilize business and taxes to regulate spending power. These are all flank attacks upon the great nerve centers of private enterprise.

For taxation, ostensibly inspired to eliminate the "inflation gap," can drug incentive, absorb all profit and slowly starve business to death. Similarly, the "compensatory budget" as an instrument of business cycle control becomes in fact a one-way street leading ultimately to hyperinflation and bankruptcy or "currency reform" in the Russian pattern where the government simply seizes 9/10ths of all your money. Neither of these ultimates is conducive to business vitality. They are, in truth, not intended to be.

The perversion of a bank's reserves follows the same pattern. Although our banks today are infinitely more liquid than they were in 1913, they are forced to maintain reserves that are, relative to deposits, more than twice as large. Such reserves are frozen assets. They earn no return for the banks. These sterilized funds, over and above normal reserve requirements, at the present time amount to more than \$10 billion. As blocked cash, they deprive the Federal Reserve member banks of approximately \$160 million in annual earning power.

The Federal Deposit Insurance Corporation, now demanding an increase in bank capital, assesses the banks each year 1/12th of 1 per cent of their total deposits as an insurance premium. Although the premium levy is on total deposits, the actual insurance protection extends only to the first \$5,000 of each account. This charge in 1947 amounted to \$114 million. The insurance premium in a single year amounts to five times the total of all losses incurred by all insured banks in the 14-year period 1934-47. The FDIC has already accumulated a capital fund of more than \$1 billion.

These charges against the earnings of banks have had a marked effect on the growth of banking capital and on the appeal of bank stocks to investors. Devitalized through the subtle devices of exaggerated reserves and excessive insurance, the banks are losing their capacity for healthy growth. Soon we shall hear a cry for nationalization of banks on grounds of functional failure coming from the authors of the devices which made such failure inevitable.

Joseph Stagg Lawrence

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► Inventory conscious consumers are still tightening their belts. Last week an eastern firm was trying to peddle 500 tons of cold-rolled bars, SAE 1010 and 1020. The company said these bars were obtained in their regular course of business, but represented a high inventory which they hoped to dispose of. They expected to take a loss.

► The pressure to get down prices of raw materials, including steel and parts sold to automakers, is more intense than it has been for years. Some car manufacturers are sending out letters to their suppliers; others are merely passing the idea along in their conversations with sales representatives.

► The steel pipe picture is changing. Drill pipe, which a few months ago was tight, is now easy. Oil well casing is going to users as promised but any new orders might take more than 30 days for delivery. Oil well tubing is still tight but is easing fast. In the next several weeks most mills will be meeting all promises on tubing. Line pipe is still the tightest steel item. Because of big gas lines approval it will stay that way for a time. Only a few mills can fabricate large diameters needed for big tonnage lines.

► Warehouses which, during the steel conversion era, installed extensive pickling, leveling, shearing and slitting lines, are going to have to scratch to hold this business. As steel supplies ease, regular producing mills believe they will be able to handle the bulk of such operations.

► Closer economic cooperation between the U. S. and Brazil seems in the cards. In addition to economic factors, Washington is interested in Brazilian development for strategic reasons. Within the next month president Dutra is scheduled to arrive in this country for talks on the subject.

► Decreases in the cost of living since last fall have slowed, but not stopped, wage increases in new contracts. Most new contracts call for higher wages but the amount of increase in most cases is smaller than in previous rounds. Pension plans are appearing in significant numbers for the first time.

► Steel consumers are swamping producers with requests for truck delivery beyond the capacity of the mills to handle them. Some consumers without truck sidings are requesting truck delivery. Contract truck rates are even lower than the published tariffs. Some mills have set up a system under which requests for truck delivery must be declared to the home office for approval.

► Gasoline economics promises to engage a major portion of the attention of automotive engineers in the years ahead. The potential reward is staggering: A 1 pct overall gain in miles per gal would save motorists \$90 million annually, or add 5 3/5 billion car miles of additional driving. Car owners can also help, since under-inflated tires may cost as much as 2 to 3 pct in miles per gal.

► Industrial mobilization has proceeded to a point where some dies and tools have been made, and are now on hand, in the actual plants which are scheduled to use them in the event of war.

► An experimental gas turbine specifically designed for installation in gas pipeline service has been ordered. This gas-fired turbine, which will develop 5500 hp, is expected to have a thermal efficiency of more than 30 pct, will drive a centrifugal compressor. The model will be used to investigate the feasibility of gas turbines with high output and high efficiency as prime movers for long distance transmission of natural gas.

► A large maker of electric ranges will start in May to redesign its deluxe line in order to bring down retail prices. This manufacturer plans to discontinue widespread use of pushbutton controls in favor of lower priced mechanisms.

► A research program has been undertaken on the abrasion of liners for molds used in producing refractory brick. In present practice mold liners made from high alloy wrought steel are said to last only about 3 days in the production of silica brick. The investigation will include laboratory research and testing and controlled field testing in actual manufacture of refractory products.

► The latest walky-talky radio set, developed under Army research contracts, weighs only 18 pounds as compared with the 35 pound weight of the old set. Part of the Army's program to miniaturize as much equipment as possible, the new set can be operated under any climatic conditions.

Milling Aircraft Wing Skins

By T. E. LLOYD
Machinery Editor,
THE IRON AGE

North American is producing an air foil for its F-86 fighter by contour milling the wing skins. Machining as well as other methods are being critically examined by the Air Forces to meet any emergency demand for mass production of nonfabricated wings for high speed aircraft.

THE fluidity of wing design for military aircraft necessitates a constant search for better production methods, improved processes, and the constant assurance of ample production capacity. Thin wing sections with high strength-weight ratios have posed problems of production never before encountered because these thin sections are no longer of such a nature that they can be internally braced with fabricated structures. Instead, internal structures are becoming an integral part of the wing skins, with the entire skin and stiffener arrangement being produced as a single part.

Consequently, manufacturing methods have been tending toward extruded, forged and cast wing components, tapered sections rolled from plate and sheet stock, and integrally stiffened skins either extruded or machined to form.

The wing skins used in the North American F-86 sweptback wing fighter are contour milled from plate stock, providing maximum wing strength with minimum weight. Each wing, left and right, is built up of seven parts and each part has a double taper as well as thick, offset sections for fastening. While a completely tapered section would carry the load, means must be provided to load and unload stresses. This is done by rivets and bolts and sufficient area to transmit the load to the bolts must be provided in the machined sections. This means additional thicknesses in areas that take the fasteners.

For example, the skins must be fastened to the wing spars, requiring an area $\frac{1}{2}$ in. wide and thicker than the remainder of the section to provide necessary rivet bearing surfaces. This is shown in fig. 1. The sketch is not that of an actual wing section, but shows the principles involved, exaggerated to emphasize the problem.

The milling of these wing sections is done on a tracer controlled planer type milling machine,

shown in fig. 2, with special milling heads and special work chucking facilities. The milling machine was designed by the Cincinnati Planer Co., utilizing a planer bed and an Onsrud high cycle milling head. The part chucking mechanism involves clamping the part around the edges and then evacuating the air from under it. This creates a vacuum that holds the part securely in position during machining.

The working area is serviced by a crane with vacuum lifting devices. These lifting devices consist of a triangular shaped frame fitted with three vacuum cups. A small pump, located on top of this frame, evacuates the air in the cups and when the pump reaches 27 in. Hg—a matter of a few seconds—the sheet or the finished part can be transferred easily into or out of the machine. The triangle design was selected because only three points of the section were flat after the milling operation and common to the various part designs.

Utilizing a 12-in. diam carbide bladed face mill, cutting speed ranges upward of 1000 sfpm. This is made possible by the use of an Onsrud high cycle milling head with a spindle speed of 3600 rpm. Feeds range up to 12 ipm. Because of the speed of milling, chip disposal is somewhat of a problem. The part machined is in a horizontal position and the nature of the work makes it necessary to remove the chips to prevent scratching or scoring of the part. While fig. 2 shows that the chips are brushed off the part, air is also used to blow them off as they are formed.

By using tracer control, there is no par-

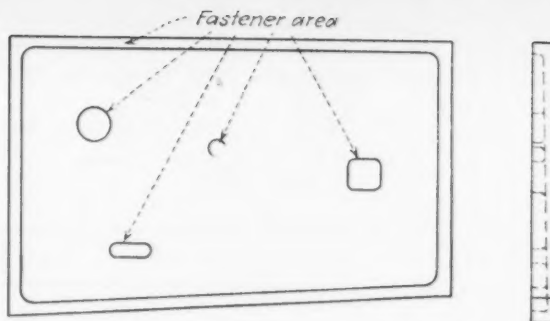
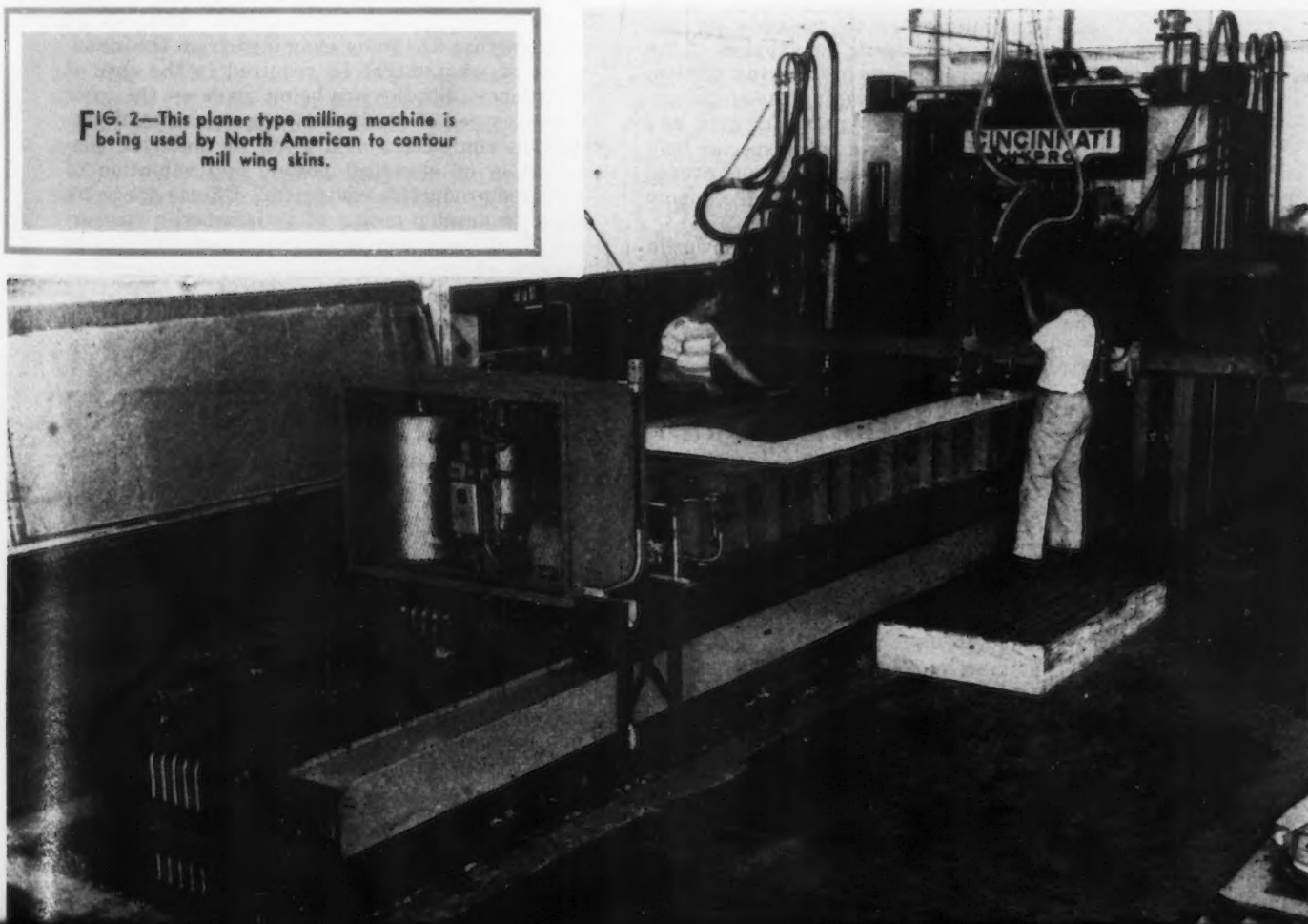


FIG. 1—Wing skins for some aircraft are being contour milled from aluminum plate stock. While not a sketch of an actual wing section, this shows the machining requirements. The section is tapered in thickness and in width with rivet and bolt bearing surfaces an integral part of a section.

ticular difficulty encountered in getting the two-directional taper and necessary offsets. However, production of a single section requires from $\frac{1}{2}$ to 2 hr, depending upon size and sectional design of the part. It is hoped that eventually there will be developed a set of standard wing sections applicable to a variety of planes, so that production as well as servicing will be facilitated. The loss of metal by this method tends to make its use prohibitive. About 63 pct of the original plate material is milled off and returned as scrap.

Machining as a method of developing wing sections is costly, slow, requires expensive machines and many of them (about \$60,000 each), and does not utilize enough of the aluminum plate

FIG. 2—This planer type milling machine is being used by North American to contour mill wing skins.



stock. This latter, in turn, throws a heavy burden upon electric power facilities. However, for the particular design and job, machining now appears as the only practical method.

Military aircraft production engineers are

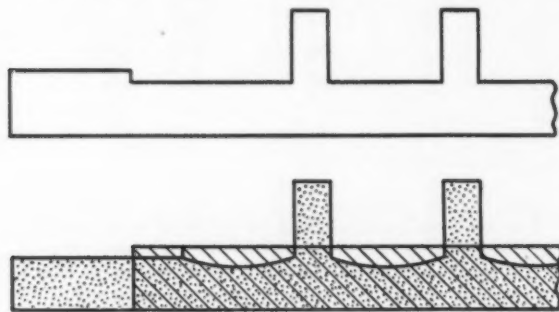


FIG. 3—A Lockheed skin design is shown here as a machined section (above) and a forged section (below). The cross hatched area in the forged section is the original stock size. The convex contour between the structural members in the forged part aids metal flow into the ribbing.

searching for other methods. The solid tapered wing is one technique that has been used to a limited extent on certain types of aerial combat equipment. Methods have been developed for rolling the required tapered sections at the mills. After heat treating the sections are stressed out of shape, and it is here that trouble is encountered. No satisfactory means of leveling the sections has been devised. Work is proceeding in this direction, but common practices do not suffice. Stretcher leveling usually causes the thin end of the section to tear away before the metal reaches the plastic deformation stage where it will remain in the straightened condition.

Press tapering or machining to taper can be done, but economies of such methods do not measure up to taper rolling by the supplier of the stock. After the initial taper in the wing section, there is still the matter of shaping the section to the desired contour. Stretch press forming and forming in hydraulic presses with special hold down equipment is being used. This has proved satisfactory both from production and economy standpoints.

Wing skins have been forged, as shown in fig. 3. This is a section from a skin designed by Lockheed Aircraft Corp. The upper drawing shows the shape of the rib section as produced

by machining and the lower shows a section of the forged skin with the hatched-line area representing the metal that must be compressed into the die cavities. The section between the ribs is held to a convex form so that the flow of metal into the ribs is more easily accomplished. There are some limiting factors in this method of production, however. Specific pressures required to forge skin thicknesses often are so great that it is difficult to find die steels capable of withstanding such loads over a sufficiently long period of time. The chances of forging walls thinner than $\frac{1}{8}$ in. are not too hopeful.

Skins produced by extruding offer considerable possibility. The particular skin shown in fig. 4 is typical of quite a range of such designs. The T sections, extruded as an integral part of the skin, offer good support for fastening to other structural parts and the interstices between the members offer satisfactory fuel storage space.

Thus, it can be readily seen that military wing design is in a very fluid state, as are the production methods by which the wings will be made. The Air Forces are fully cognizant of the shortcomings as well as favorable characteristics of manufacturing techniques now in use. By making greater use of forged and cast parts, greater

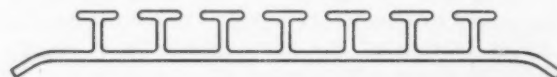


FIG. 4—Extrusions likewise are being considered for wing sections where structural parts and the skin must be of one piece. The particular section shown here is recognized as one of the best designed to date.

strength-weight ratios are achieved, marked reductions in cost have been evident, and a more satisfactory product has resulted. Methods of manufacture are being examined from the standpoint of what might be required in the case of emergency. Studies are being made on the basis of cost, speed of production, requirements of production equipment, utilization of material, conservation of electrical power, and valuation of required production equipment. Efforts are being made to develop means of satisfactorily answering all of these requirements and have an industry capable of producing satisfactory equipment in sufficient quantity within the short period of time available for rearmament.

Measuring Magnetic Anisotropy of Steel

AN electronic instrument that measures and records automatically the mechanical torque exerted by a uniform magnetic field on a circular disk of sheet iron or steel to determine uniformity of its magnetic properties has been developed at the Research Laboratory, U. S. Steel Corp. of Delaware, Kearny, N. J. The recording torque magnetometer uses flat steel samples about the size of a quarter dollar. It makes a recorded reading in 6 min.

Two typical practical applications in which measurements of this kind have proved useful are: (1) testing improved high grade silicon steels for electrical transformer cores, in which

superior magnetic properties are desired in the rolling direction, and (2) controlling production of tinplate with uniform drawing properties for the manufacture of such products as bottle caps.

In the latter case, magnetic anisotropy, as indicated in the torque test, gives a clue to the amount of preferred orientations present in the crystallographic structure. This, in turn, indicates the extent of the directionality to be expected in the mechanical properties. Hence, the recording magnetometer provides a new tool that will be valuable in studying drawing qualities of steel used in such important applications as automobile fenders and bodies.

Fracturing Connecting Rods Assures Perfect Alignment

DEVELOPMENT of a fractured joint connecting rod, fractured in such a manner that when the cap and the rod are put together there is no chance of misalignment, has resulted in a product recognized for its long added ease of assembly and service, long life, and for the fact that it requires no special parts or costly close tolerance machining of mating surfaces. Working on the basis that nothing will fit together as well as broken parts, the Parks Engineering Co., Milwaukee, developed this Perfect Alignment Connecting Rod.

The connecting rod is first machined from a forging with a round boss at the crank end, allowing no stock for cutting the cap from the rod, as shown in fig. 1. In normal procedure, 1/8 to 3/16 in. is provided for machining the joint between the rod and the cap. The forging is completely rough machined and heat treated, and partially finish machined in one piece. Then with screws started in the screw holes, the cap is broken from the rod along a well defined and confined area. The rod is then reassembled by tightening the screws, with the minute irregularities of the broken surface acting as small dowels. The cap realigns perfectly with the rod in exactly the same position as it was before the part was broken. The broken parts and mating surfaces are shown in fig. 2.

The realignment is so perfect that the bearing hole can be ground and honed to within 0.0001 in. of being a perfectly round and straight hole, the rod disassembled and reassembled, and the hole will return to the original shape within 0.0001 in. total indicator reading. This can be done without the use of torque wrench readings on the screws at assembly. The parts are easy to reassemble, but care must be exercised to exclude dirt and foreign matter in the break that would prevent the rod from going back together.

In addition to the increased quality in the finished connecting rod that this patented fracturing method of construction affords, it also gives other economies. There are economies in the forging dies because of the round rather than the elongated bosses at the crank end. It saves the cost of two screws spoiled in each rod during heat treatment, since the rod is one piece during heat treatment. There are no machining operations required on the face of the cap and rod, and the cap and rod are handled in one piece, dispensing with the use of compartmented trays to keep the proper cap with its respective rod.

The fracture method allows the use of the cheapest kind of screw fasteners to hold the cap and rod

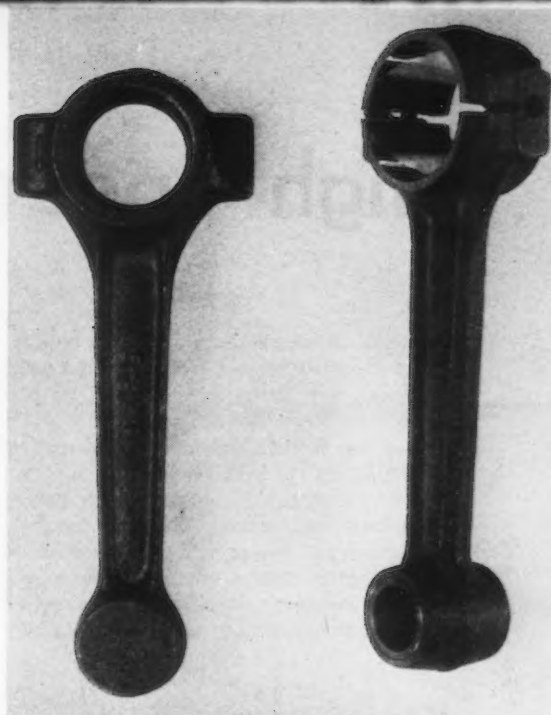


FIG. 1—Connecting rods are forged with a round crank pin hole, machined and heat treated in one piece. Then the cap is fractured from the rod. The forging is shown at left and the machined rod at right.

together, since none of the alignment is dependent upon screws, their only function being to hold the rod and cap together.

This fracture method has been used on hardened steel connecting rods for loose roll applications, alloyed aluminum bronze rods for two and four cycle applications, and in heat treated steel rods for use with shell inserts for four cycle and pump and compressor applications. The connecting rods made to date have been mainly SAE 4615 and 3140 steel and a special Ampco aluminum bronze alloy. These connecting rods are now in use in power lawnmowers, outboard engines, and many other small two cycle engine applications.

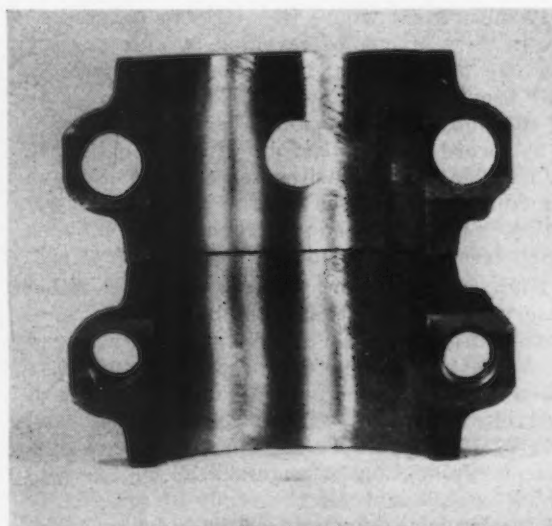


FIG. 2—The fractured faces of the cap and rod make perfect mating surfaces when reassembled.

High Speed Motion Pictures

By RICHARD O. PAINTER

*General Motors Proving Ground,
Milford, Mich.*

INDUSTRIAL processes frequently involve rapidly moving mechanisms, and on occasion these high speed mechanisms do not operate as intended by the designer. For detailed examination of such motions, which are too fast for the eye to follow, the high speed camera has proved a valuable tool.

Other methods can, of course, be employed in the study of processes for possible faults. The trial and error method is time-consuming and seldom results in complete assurance that all trouble has been eliminated. Strain gage techniques are excellent in specific jobs, if applied at the right spot. In this connection, high speed photography can assist such quantitative studies by revealing points where destructive stresses are to be expected. Strain gages, however, cannot always be used conveniently and without a modifying effect upon the motions under study, and in these cases high speed photography can often be used with excellent results.

In most cases where the parts to be studied are in view or can be revealed by cutaways or the use of windows, high speed photography will provide a good overall slow motion study of the subject. This study becomes a permanent record for comparison with other designs or modifications and will often suggest effective remedial modifications for the troubles. In addition, such a procedure frequently consumes much less time than other methods of attack.

High speed motion pictures permit detailed observations of motions which occur in mere thousandths of seconds, for the high speed camera acts as a time microscope. Pictures are taken at frame rates up to 10,000 per sec with portable equipment. Projection at the normal rate of 16 frames per sec then will provide a time magnification of as much as 600; a rate which is sufficient for the study of practically all mechanisms encountered in industry. The cameras are equipped with timing devices which register timing marks along one side of

the film. One camera provides a motorclock image which makes it possible to determine very accurately the speed, frequency or accelerations of parts photographed.

High speed cameras used at General Motors Proving Ground are all of the portable type and are capable of taking pictures at rates from about 100 to a maximum of 10,000 frames per sec. Non-portable equipment has been built which will take pictures at much higher frame speeds; however, these cameras are usually applicable only to special problems.

Unlike standard motion picture cameras in which film motion is intermittent, the film in

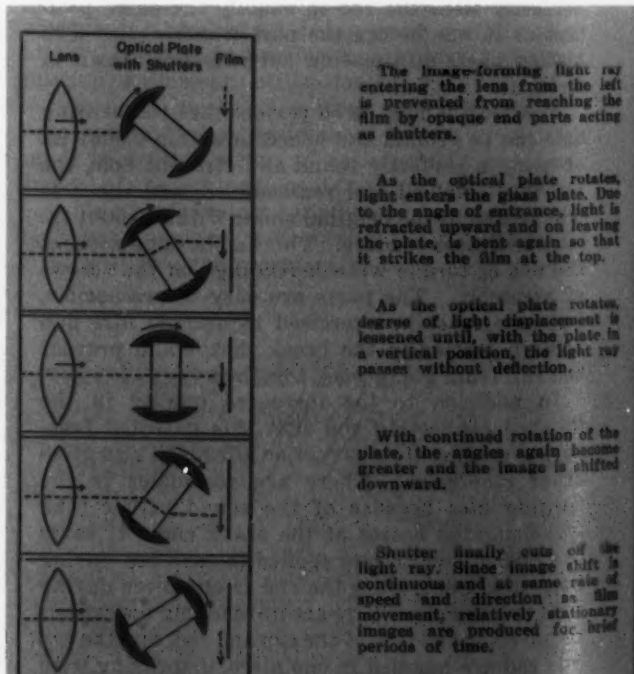


FIG. 1—Illustration of the manner in which optical compensation for film movement is obtained in the rotating-prism type cameras. For the sake of clarity, only a single ray of light is shown to illustrate the principle.

—Aid in Analysis of Production Processes

High speed motion picture cameras, capable of taking up to 10,000 frames per sec, have become an important research and development tool. Studies with this equipment have made possible the establishment of metal cutting tool action, electrical conditions associated with mechanical contacts and the mechanisms of other production processes. Information on the equipment required, the techniques used and the results obtained—in machining and cold-heading studies in particular—is given by the author.

a high speed motion picture camera must run continuously due to the rate at which pictures are taken. Because of this requirement, it is necessary to provide some means of obtaining a picture image which moves with the film during the exposure of each frame. The three cameras used by General Motors Proving Ground are all of the so-called rotating prism type. Optical compensation in the form of a rotating prism geared to the film drive sprocket is used to produce picture images which follow the moving film as exposure takes place.

Fig. 1 illustrates the manner in which the

rotating prisms operate. The three cameras used by the Proving Ground have rotating prisms of different types. One of the two 16-mm cameras has a 2-sided prism and the other has a 4-sided prism, while the 8-mm camera uses an 8-sided prism. Prism operation is similar in each case to the illustration.

The original camera used by the Proving Ground included a special timing system and is still in use. This camera will accommodate 50, 100 and 200 ft rolls of standard 16-mm film and will take pictures at any rate between 75 and 2000 frames per sec. A motorclock is incorporated in the camera base providing a timing image which is recorded on the film to the right of the picture area but within the projected frame area. A tuning fork generator of extreme accuracy is used to supply the motorclock with a fixed frequency regardless of line voltage and frequency fluctuations. In addition to this instrument, the Proving Ground has since added an 8-mm and another 16-mm camera. A view of the latter is shown in fig. 2.

Fig. 3 shows a typical camera setup with all the operating accessories normally required. One of the 16-mm cameras is shown arranged to photograph milling machine cutting tool action. A voltage and timing control box is used to make camera and light operation completely automatic upon pushing the remote control button which the photographer is holding. This control ties in the operation of the lights to the camera and shuts the power off after the time required for the film to pass through the camera

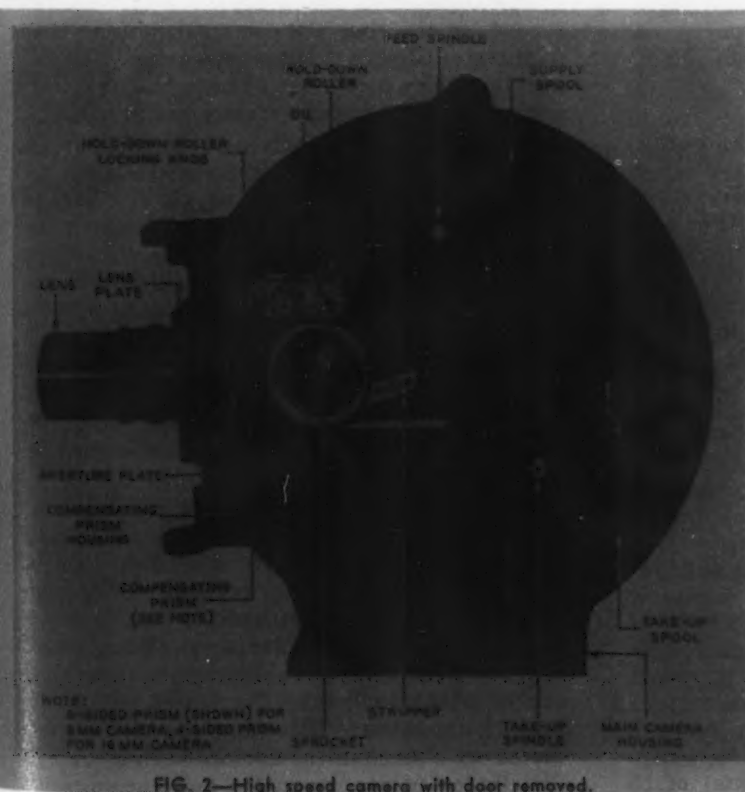


FIG. 2—High speed camera with door removed.

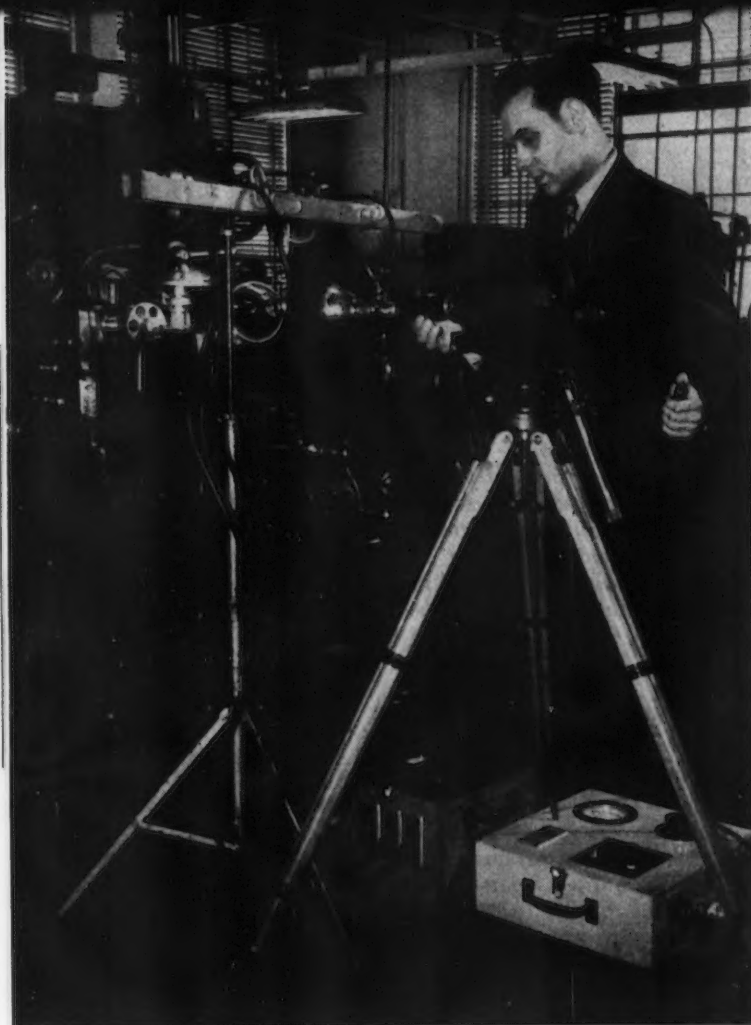


FIG. 3—Arrangement of high speed camera equipment for photographing a milling operation. o o o

has elapsed. The control unit, shown between the legs of the camera tripod, consists of a line switch, a 0 to 14-sec photographic timer, a 0 to 135-v variac and a meter for reading the voltage applied to the camera motors. A voltage tap is provided for the lighting transformers. This may be directly supplied from the outlet or controlled by relay should the lighting load be heavy.

Referring again to fig. 3, the small box beside the timing control supplies power to the lighting units. Such transformer boxes may be used in multiple to supply any number of lighting units, the number of which will depend upon the area to be covered, the camera speed and the emulsion speed of the film to be exposed. The lighting units used are standard type 150-w projector spotlights. The lighting supply box contains an autotransformer which allows the lights to be operated at normal line voltages for setting up and focusing with a high-low switch on the box to permit the application of 200 to 220 v to the lights when pictures are taken. A tap switch provides for adjustment of the output voltage to compensate for various line voltages. With the high voltage applied, the lights operate at extreme intensities reaching illumination values (for three lights) of 15

to 20 times that of the brightest sunlight. Operating in this manner, the lamp filaments have a life of 2 to 6 hr, permitting the exposure of many thousands of feet of film during the life of a set of lamps. These high levels of illumination are necessary because of the very short exposure time of each frame. For a camera speed of 10,000 pictures per sec, equivalent exposure time may be as short as 20 millionths of a sec per frame.

A variety of lenses may be used with these cameras, the only limitation being the lens-to-film distance which must allow for the interposition of the rotating prism. Lenses of 1½ in. or longer focal lengths give the necessary clearance, and since most subjects may be easily photographed with narrow angle lenses, this imposes no particular restrictions.

Fifty or 100-ft rolls of black and white or color film may be used in these cameras. The film generally used for maximum speed operation is super-XX double-perforated in tropical packing. The high emulsion speed permits stopping down the lens for greater field depth. Double-perforated film possesses added flexibility, which is desirable but not required in the cameras, and tropical packing prevents film shrinkage which would result in erratic operation.

When one of the 16-mm cameras is set for 5000 frames per sec, 100 ft of film will pass through it in just 1 sec. This means that the average speed of the film is about 68 mph, including acceleration from a standstill. Its maximum rate of speed, during the fraction of a second it is traveling at the 5000 frame per sec speed, is about 85 mph.

Questions often asked are: (1) Is real film used from the time the camera begins to take pictures until its set speed is reached, and (2) how long does it take the camera to speed from a standing start to 5000 frames per sec.

In all cases, real film is used throughout the whole operation. Assume the camera is set for 5000 frames per sec. After only a few feet of film have been exposed, the frames which immediately follow are useful. After about 7 ft have been run, the camera is taking pictures at the rate of 2500 frames a sec, and after a total of 25 ft, it is recording at the approximate rate of 5000 frames a sec. Thus, the remaining 75 ft of film are taken at a slowly increasing rate of about 5000 ft per sec. From a standing start, the film is accelerated to some 85 mph in about 0.5 sec.

Applications of high speed photographic equipment are almost endless. Any mechanism which is exposed to view or which can be viewed through the use of windows or cut-aways in the mechanism housing can be investigated. Air flow over surfaces, through fans or propellers and through ducts and orifices can be photographed by the use of smoke-generating equipment. Electrical conditions associated with mechanical devices such as relays, distributor points, magnetos and commutation

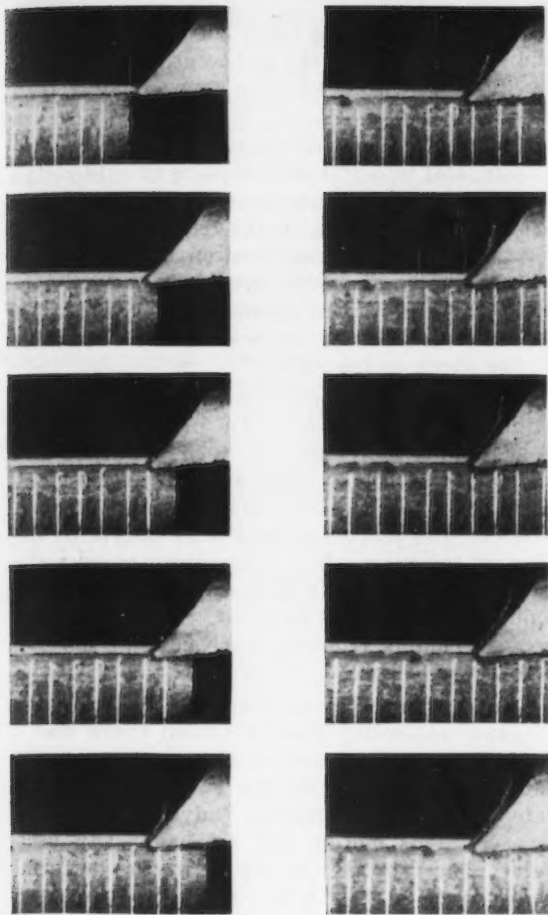


FIG. 4—Milling machine sequence showing cutting tool taking rough cut on a cold-rolled steel block.

equipment can be shown by photographing the face of a medium persistence blue screen cathode ray tube along with the mechanism being studied. In this application it is possible to associate noise and strain, etc., with the mechanical motions producing the effects by using electrical pickups to cause proportional deflections of the cathode ray tube electron beam. With such an arrangement the persistence of the screen will show the overall output variations of the pickup device, while a considerably brighter spot indicates the instantaneous position of the output voltage. Such investigations are limited to applications in which the electrical frequencies are no higher than about $1/5$ the camera frame frequency.

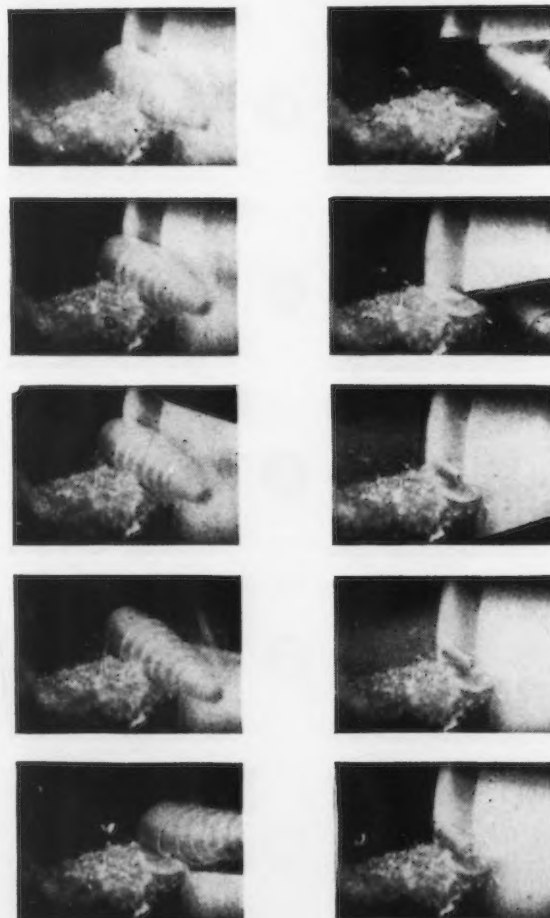
In general, high speed motion pictures do not lend themselves well to presentation as a series of still frames. Motions which will show very nicely when a film sequence is projected in the normal manner are quite difficult to detect other than by close measurement on the reproduction of the film strip. The illustrations shown here are intended primarily to demonstrate various subjects which may be well studied by high speed photography. Close inspection and measurement may be required to establish the motions which are quite evi-

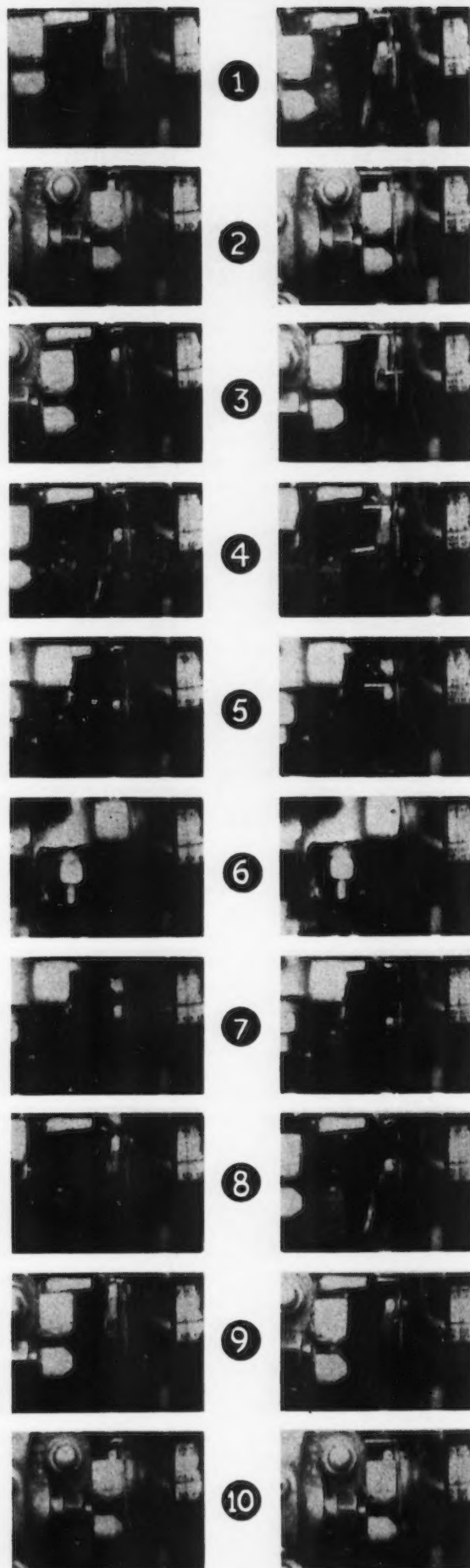
dent when the films are shown in normal 16-frame per sec projection.

At the Proving Ground, films of an automobile wheel passing over a 3-in. obstacle at a car speed of 40 mph were taken to determine the extent of tire deflection and the rise of the wheel as the force of impact is transferred to the axle. Pictures of this sort taken through or projected on a rectangular screen for scaling purposes permit evaluation of the performance of various types of tires and effects on the overall suspension system of the absorption of road shocks.

The action of metal cutting tools may be closely examined by the use of high speed photography. Fig. 4 shows a rough cut being taken from a block of cold-rolled steel by a large milling machine. Although the frames in fig. 4 do not show the tool deflection as the work strikes it, viewing the same pictures projected in the normal manner reveals the deflection quite well. The action of the chip at the end of the cut, not shown here, reveals that the metal shears off for some distance ahead of the tool. The compression of metal in the chip is quite pronounced as may be judged on these frames from the relative lengths of the chip and the travel of the tool along the work. This

FIG. 5—Selected frames from the film of a lathe operation on a slotted cylinder of cold-rolled steel.





sequence was taken at about 2000 frames per sec and the table feed of the work was 18 in. per sec. The graduations shown were approximately 1/16 in. apart.

The action of a milling cutter in machining a 1/2-in. slot in a cylindrical piece of cold-rolled steel also was photographed. This sequence provided information on the impact of the cutter teeth with the work and on the manner in which scraps of metal are thrown vertically from the cutter. In addition, movements of the cutting fluid on the teeth were indicative of the shock to the cutter.

Lathe turning photos have been used to establish chip action in an intermittent cut. Selected panels from one such sequence are shown in fig. 5. Spindle speed was 186 rpm with the camera taking 3000 pictures per sec. The cut was made at about a 60° angle to the face of the piece. It is interesting to note the action of the chip as it breaks loose from the tool when the slot is reached. Small chips can be seen coming from the back edge of the tool from time to time.

Study of a nibbling machine operation on 16-gage cold-rolled sheet revealed there was a small amount of reverse motion in the material caused by the taper of the guide pin incorporated to limit material advance between strokes. This motion did not cause any difficulty. The film also showed that the material sticks to the nibbler punch on the upstroke and is pulled against the presser foot.

The operation of a cold-heading machine for the production of aluminum aircraft rivets is shown in the selected frames of fig. 6. Normal operation of the machine is shown in the right-hand column. In frame 1, the rod stock can be seen feeding out toward the stop at the upper center of the picture. In the next frame, the stock has fed out completely and one head of the machine is forming the previous rivet head. Frame 3 shows the finished rivet being ejected by air pressure, the heads of the machine moving to the left and the shear above beginning to cut off the stock. The next frame shows the stock after being cut off as it is carried down to the die by the shear and holding finger. In this picture the machine is indexing to bring another head into position for forcing the material into the die. Frame 5 shows the material held in place at the die and a head of the machine coming in to force the material into the die. Frame 6 shows this action taking place, and in frames 7 and 8, the heads withdraw and index again as the stock above begins to feed out for the next rivet. In frame 9, the stock has fed out most of the distance and the

◀ FIG. 6—Selected exposures of normal (right) and of improper operation (left) of a machine producing aluminum aircraft rivets by cold-heading.

head of the machine which forms the rivet head is coming in again. Frame 10 shows the moment at which the head is formed. Operating normally in this manner the machine turns out 180 to 200 rivets per min.

The machine, however, developed trouble characterized by the production of large amounts of scrap and occasional die breakage. Accordingly, pictures were taken during a period of improper operation and frames from this film are shown in the left-hand column of fig. 6. The frames were selected to correspond with the movement of the machine heads as shown in the panels illustrating normal operation.

It can be seen in frames 1, 2 and 3 that the stock does not feed out properly and the holding finger in frame 3 is out of position. In frame 4, the machine has not yet indexed; the stock has not fed out any farther; nor has the shear operated. The failure of the machine to index at this point is of importance in the analysis of the malfunction. Continuing to frame 5 where the machine has finally indexed, the shear has still

not cut off the stock. And, in frame 6, the head of the machine is in position to force the cut off stock into the die, but the piece is not in position. Frame 7 shows that the shear has finally operated to cut off a short piece of material and this is held by the holding finger and the shear. In frame 8, where the machine has again not indexed properly, this small piece of material is being carried upward, and in frame 9 the short scrap is being pushed out of the grip of the shear by the stock feeding in from the right. In frame 10, this piece has already fallen out of sight as the head of the machine comes in to form a rivet head.

With each cycle, the machine tossed scrap out, and with these pieces falling haphazardly at various times it was apparent that die breakage was being caused by the pieces being caught occasionally between the head and the die in an offcenter position to cause a severe impact to the die. Analysis and correction of the trouble was simple when the films, which were taken at 1500 frames per sec, were shown to personnel familiar with the operation of the machine.

Rack Slotting in a Rise and Fall Miller

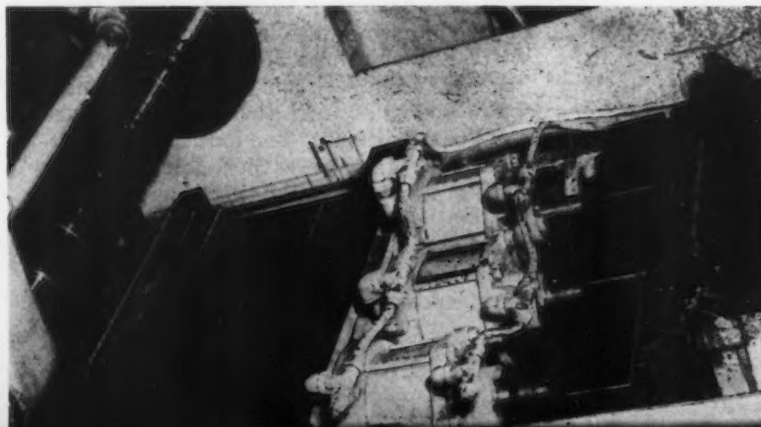
TABULAR racks are among numerous parts for electric typewriters produced at the Poughkeepsie plant of International Business Machines Corporation. Steel bars of square section are used in making these racks. The milled slots across one face have straight bottoms, but slots on the opposite face form a convex arc on the bottom to fit tabs that rock about a pivot parallel to the bar.

As the tabs make a close fit in the slots, the side faces of slots on one side of the bar must be in precisely the same planes as the side faces of slots on the other side, or binding will result. This makes it expedient to use the same set of cutters in slotting the two faces. Since each bar must be turned over between the two sets of cuts, location from the same end is necessary and clamping must be firm with faces of the bar precisely parallel to the axis of the cutter arbor.

To perform the slotting, the setup shown in the accompanying illustration, in a Cincinnati milling machine is used. Two heavy, air operated clamping fixtures are attached to the table and two racks are slotted in each working traverse of the table. Straight bottom slots are cut on the first piece, left in the illustration, but, for the second cut, the cutter arbor is made to rise and fall by a cam placed on the table in correct relation to the second fixture at the right. Since the cam causes the arbor axis to describe an arc, the cutters produce arc shaped bottoms in the slots cut on the second face, as required.

After the return traverse of the table with cutters clearing the work, the two fixtures are unlocked and unloaded, the piece taken from the left fixture being turned over and shifted to the second fixture and a new piece being loaded into the first fixture. In both fixtures, endwise location, parallel to fixture jaws is from the same end of the piece, hence serrations on both sides of the bar are always in line, being spaced the same and of the same width, as specified. Production of completed parts, milled on both sides of the bar, runs about 25 per hr.

SETUP for rise-and-fall milling of slots on tabular racks for IBM electric typewriters. Straight slots across one face of bar are cut in the piece in the fixture at left. Slots having arc shaped bottoms are produced in the opposite face of the bar in the second fixture, right. During these latter cuts, the cutter arbor is made to rise and fall by a cam that is hidden in this view.



Effect of Contamination On

By HOWARD E. BOYER

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American Bosch Corp.,
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FOR many years published data has been available relative to the quenching characteristics of various media. Unfortunately, most of this data has been incomplete, thus, in many cases provoking a state of bewilderment. There are two reasons for the existence of such a condition; (1) most of the quenching media used for study were in the pure form, while in actual practice some contamination is frequently present to an appreciable degree, and (2) the methods heretofore employed for evaluating a quenching medium have varied so widely that it is often difficult to correlate results.

In order to obtain the data included in this article, a somewhat new line of attack was employed. The standard Jominy hardenability test, which holds all factors constant, except the difference in hardenability characteristics of the steel, can be reversed if a steel of known hardenability is used, thus allowing an opportunity for controlled variation of other factors such as composition and temperature of the quenching medium.

For a steel of known hardenability SAE-52100 was adopted and used without exception. Since hardenability will vary from heat to heat and even to a small degree from bar to bar, it was necessary to standardize for each bar of material used. The method employed for accomplishing this was to cut three Jominy samples from each bar (one from each end and one from near the center) and end quench them under standard and identical conditions. The hardenability patterns of these three were then determined by means of a standard Rockwell tester equipped with an Equitron, and the average results were established as the hardenability for the particular bar. In no case was any appreciable degree of difference encountered in the hardenability

among the three samples (probably within limits of experimental error), but in order to avoid all variables possible this seemed to be the only safe method for establishing the hardenability for a given bar. After the hardenability was determined for a specific bar by the above method it could then be used for test specimens to be used in checking hardenability variations as influenced by other factors.

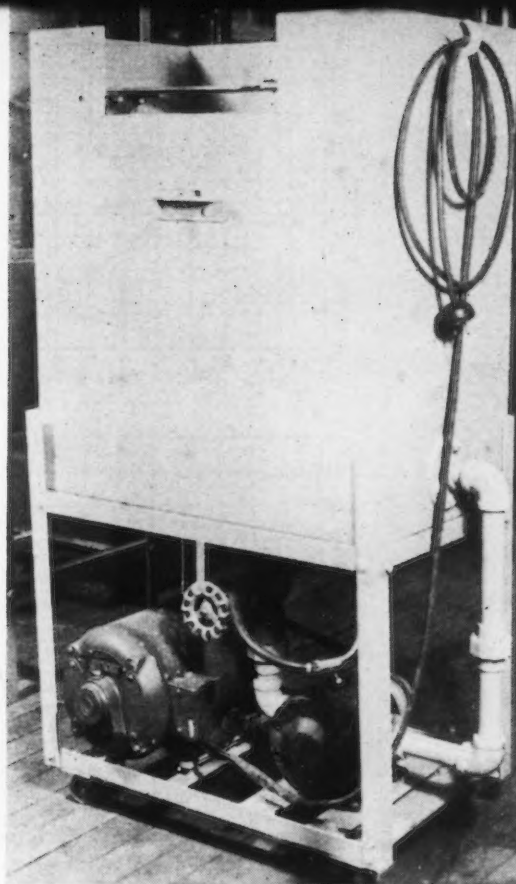
Since Jominy test apparatus, usually employed for standard tests, is connected to a water line, it is not easy to alter the characteristics of the quenching medium. For reasons of convenience it has been the practice of the author for some time to use a portable and integral unit for end-quench tests, see fig. 1. This machine complies with all specifications for the Jominy tests, but with the motor-driven pump the same quenching media is used over and over, thus permitting the use of any type of quenching media. This system also facilitates alteration of temperature by inserting an immersion heater through the side or cooling by means of ice or refrigeration coils in the lower part of the tank.

The study of quenching characteristics reported in this article was intended primarily to obtain definite data relative to the effects of water or other contamination products in quenching oil. It is not at all unusual in heat treating plants to find that the oil quenching system has become contaminated with foreign material—water being the most common, since it can enter rather easily by means of condensation or seepage in case of underground supply tanks. It is usually expensive and difficult to effect a complete removal of water and often results in throwing away quantities of valuable oil.

In order to make the study on the effects of

Quenching Media

A study of the influence of contamination on the efficiency of oil quenching media, in which the end-quench hardenability test was used in reverse, is reported in this article. Data are given showing the effect of water contamination in oil, as compared with conventional oil and water quenching methods. Some notes on the influence of media temperature on quenching power are also included.



● Fig. 1 — Portable end-quench apparatus.

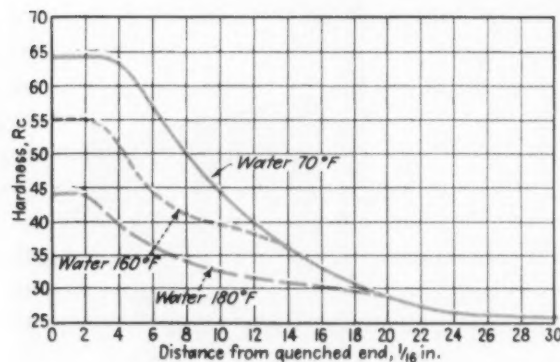
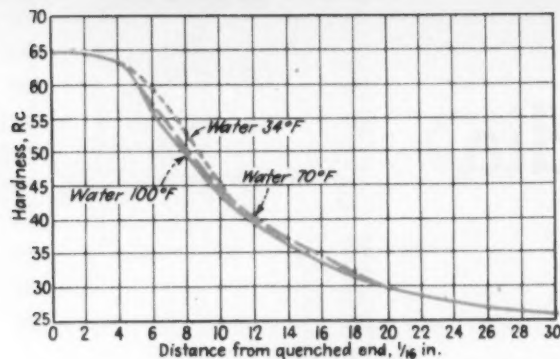
contaminated oil it was necessary to obtain comparative results on different quenching media as they existed in the pure form. This seemed necessary since a new method of evaluating quenching media was employed. In studying the effects of various quenching media three factors were kept in mind: hardenability, uniformity and susceptibility to cracking. The first step in making this study was to take a group of specimens, all known to possess the same hardenability, and use pure water as a quenching medium just as would be done in any standard Jominy test, except in this case the temperature of the quench was varied over a wide range. Data was first recorded with the quench water at 70°F, after which it was cooled in steps to 34°F and then the temperature was increased in steps up to and including 180°F.

It should be mentioned at this point that all quenching media temperatures were recorded from a thermometer inserted in the stream just prior to its striking the hot test specimen. Fig. 2 shows the results of retaining all factors constant except water temperature. All specimens discussed in this article were austenitized at 1550°F in the same atmosphere-controlled furnace. It is interesting to note that water temperature has little effect on the hardenability over the range of 34° to 150°F. The rapid drop off of quenching power occurs between 150° and 160°F with a fur-

ther, but less rapid, decrease between 160° and 180°F. These results suggest that the quenching power of a liquid is a function of vaporizing temperature rather than temperature of quenching medium.

The next step in this study was to determine the effects of brine solutions upon steel of known hardenability, in comparison with pure water. The fact is well recognized that brine in various concentrations is, for most practical purposes, superior to water. Many have logically presumed that this was due to a higher degree of conductivity possessed by brine in comparison to water. Since brine solutions were difficult to handle in the equipment shown in fig. 1, the work done with this type of quench was limited and the results are not shown graphically. In general, the effects of brine solutions ranging in concentration from 5 to 30 pct of saturation with sodium chloride showed hardenability results almost identical to those obtained from the use of pure water, when the temperature of the solutions were kept within normal ranges. As one might now logically expect, temperature increases of the brine solutions has lesser effect on the quenching power.

Although results from the hot brine solutions tended to be somewhat erratic, it can be stated definitely that a solution of sodium chloride 30 pct saturation in water will resist the decrease of quenching power some 20° to 40°F higher than



that observed by using pure water. This accounts for the fact that steel parts quenched in brine instead of water tend to show more uniform results because the vaporization point of the brine is appreciably retarded in comparison to pure water thus minimizing the formation of steam pockets as the work first strikes the quench.

The next phase of the project was to obtain results from the use of quenching oil in the ap-

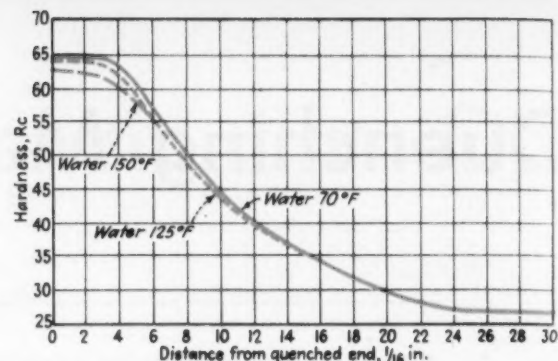
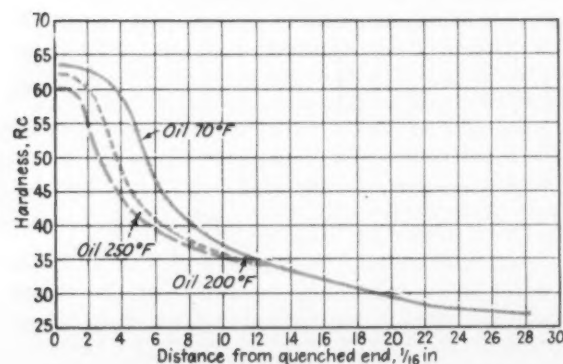
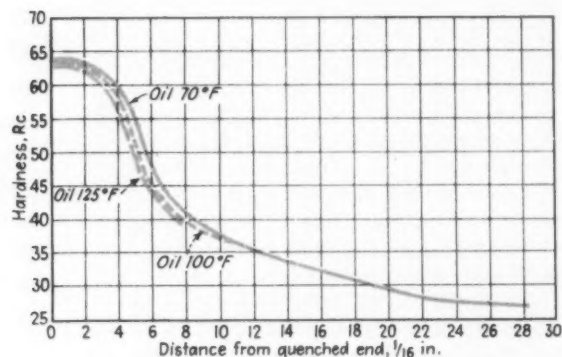
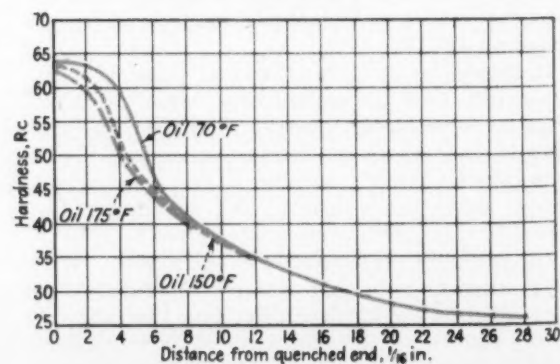


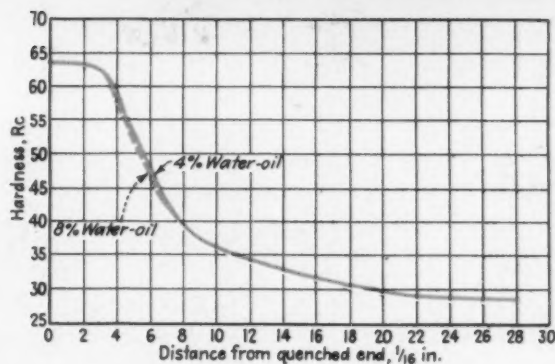
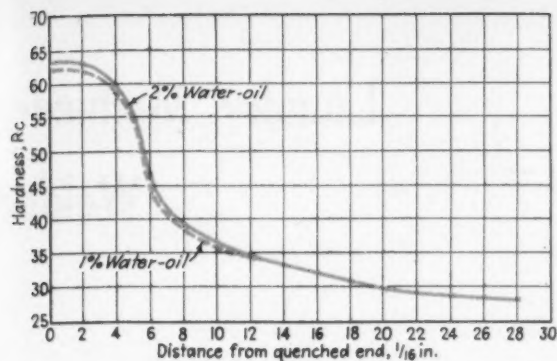
Fig. 2—Effect of quenching water temperature on hardenability.

paratus shown in fig. 1. The oil employed was one which had, over a period of years, given excellent results in production heat treating, so that it alone was used for all end-quench tests involving oil or any mixtures thereof. The equipment was thoroughly cleaned and flushed prior to filling it with the quenching oil so as to start with oil possessing a degree of purity as high as possible. In this series of tests employing oil none were attempted at temperatures lower than 70°F, since this grade of oil tends to be extremely sluggish and difficult for the pump to handle at temperatures much lower than room temperature. Besides, it is agreed among heat treaters that cold oil is a poor quenching medium because of the increase in viscosity.

It is evident from the results of the water quenching that the power of the quench is increased little or none by lowering the temperature, below 70°F at least, so far as evaluation of hardenability by the end-quench method is concerned. Thus it seemed a waste of time to attempt any quenching with oil below room temperature. Fig. 3 shows hardenability results obtained for specimens end-quenched with oil at various temperatures over the range of 70° to 250°F. It is interesting to note that the temperature of the oil effects little difference in the hardenability results even with temperatures up to 200°F. The loss in quenching power decreases gradually after a temperature of about 150°F is

Fig. 3—Effect of quenching oil temperatures on hardenability.





● FIG. 4—Effect of contaminated quenching oil on hardenability.

exceeded, at least as far as evaluation by this method is concerned.

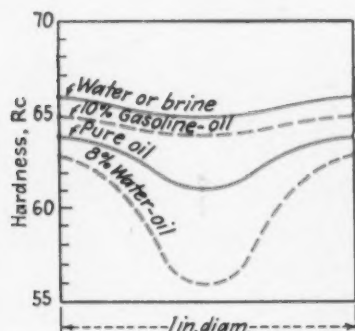
The next step in this investigation was to use the same quenching oil, contaminated with known percentages of water. Since it had already been proven just what the temperature effects were on both oil and water relative to quenching power, the temperature of 100°F was selected as constant for all tests conducted with the water-containing oil. The amounts of water used for contamination were 1, 2, 4 and 8 pct, respectively. The first end quench tests, using 1 pct water, tended to give extremely erratic results. The hardness on end-quenched bars actually varied over a range of 58 to 65 Rc at 2/16ths in. from the quenched end, and nearly all the specimens cracked. Some of these cracks were longitudinal while others occurred in a radial spiral near the quenched end.

During these initial tests it was discovered that the water was not well mixed with the oil, giving an extremely nonuniform quenching condition. Apparently in some cases the heavy concentration of water blanketed the end of the specimen with vapor pockets thus showing low hardenability results, while in others no water was striking the specimen at times thus showing results similar to a straight oil quench. This variable was corrected by running the pump for 10 to 15 min before quenching was done; the color of the emulsion would indicate when the water was thoroughly dispersed. By employing this technique the results obtained were far more uniform.

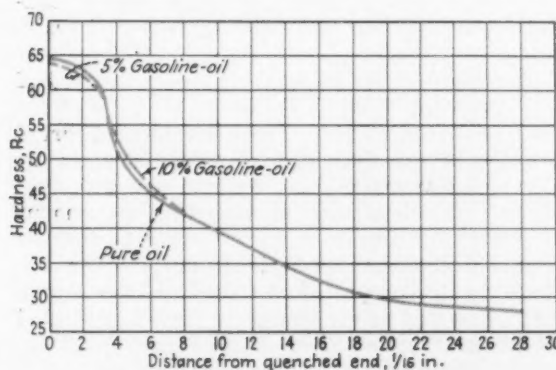
Several specimens were first end-quenched in a 1 pct mixture of water in oil, the mixture being held at 100°F. The percentage of water was then increased in steps to 2, 4 and 8 pct, respectively. Fig. 4 shows that these results do not vary to any appreciable degree from those shown in fig. 3. Hardenability results for the water-oil mixture are very slightly lower as compared with the straight oil. It is interesting to note that the results obtained by using only 1 pct water are lower as compared with higher percentages of water.

One can account for this only by assuming that a small amount of water vaporizes instantly, thus impairing the quenching action, while larger percentages of water tend to overcome this insulating blanket and contribute to the quenching power. This is merely theory, but is the best explanation the author can offer. This theory is further substantiated to some extent by the fact that there was no tendency for an end-quenched specimen to crack in any case where the water content did not exceed 1 pct. As the water content was increased to 2, 4 and 8 pct, the tendency to cracking increased proportionally. Of course, not all the specimens cracked in any specific percentage of water mixed in oil, but a number of them did show longitudinal cracks starting at the quenched end and in some cases radial cracks would occur in the hardest zone. Specimens end-quenched by a mixture of 8 pct water in oil were approximately 50 pct cracked which proves an

(CONTINUED ON PAGE 100)



● Fig. 5—Comparison of depth-hardness values for different quenching media.



● Fig. 6—Effect of gasoline in quenching oil on hardenability.



FIG. 1—The original design of this dry cleaning washer employed cast iron and brackets and riveted tub construction.

Laundry Machinery Welded

By FRANK A. GERLACH,
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American Laundry Machinery Co.,
Cincinnati*

THE American Laundry Machinery Co., Cincinnati, recently redesigned its Buckeye dry cleaning washer to make use of welded steel construction. The new arc welded washers now in production weigh less, manufacturing costs are lower and the washers operate more efficiently through the elimination of certain troubles inherent in the previous designs.

A dry cleaning washer consists of a perforated drum or cylinder revolving in a water tight tub or shell. The cylinder, operating at a speed of 21 rpm for a 42 in. diam size, makes seven revolutions in one direction and seven in the other, or three reversals per min. Because petroleum solvents and other cleaning formulas are used in the tub for cleaning, the tub unit must be strong and rigid to resist operating loads, of permanently leak-tight construction, and must be able to resist corrosion.

The previous design of the washer consisted of cast iron supporting end brackets braced with tie rods, as shown in fig. 1. These brackets supported the shell in which was held the revolving cylinder. The unit was riveted and calked. The principal difficulties with this design were that the amount of machining necessary on the brackets and the assembly time involved made the unit costly. Also, operating failures resulted from leaks developing around riveted joints where the shell was riveted to the end brackets and in the longitudinal lap joint in the shell.

The first step that eventually led to the complete redesign of the machine was to make a welded steel

tub so as to eliminate the leak problem. This suggested redesigning the end brackets, and the unit shown in fig. 2 involved. While this transition had certain advantages over the old washer, the assembly costs were relatively high because the end brackets and the tub were fabricated as

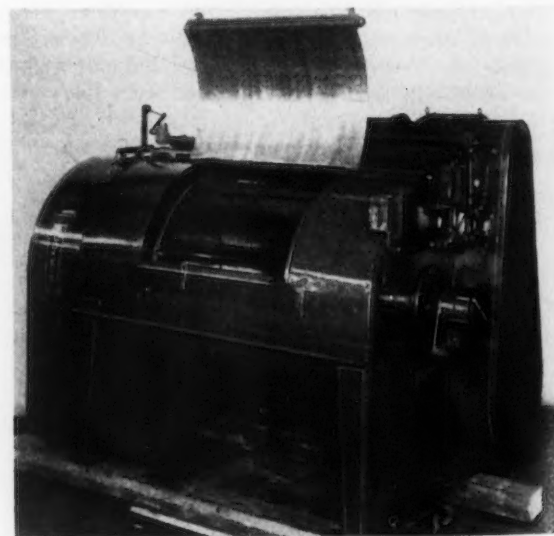


FIG. 3—Further redesign resulted in elimination of tie rods, simplification of assembly and savings in material. The end brackets and tub are made as an integral unit.

Redesigned for Construction

Redesign of a dry cleaning washer to permit use of welded steel construction, as described in this article, resulted in reduced manufacturing costs through a reduction of machining and assembly time. Operating efficiency and appearance of the machine were improved and weight was reduced.

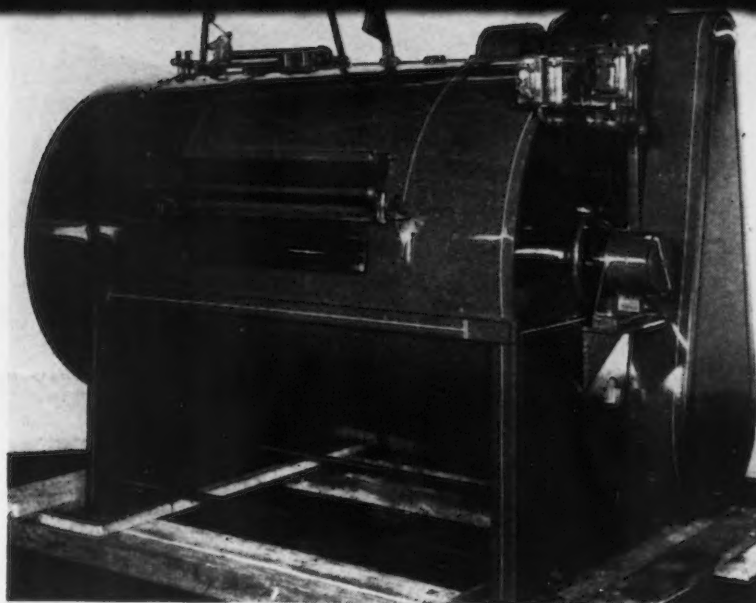


FIG. 2—The first redesign used a welded tub and welded end brackets. In this design the tub or outer shell was made as a separate unit and mounted on the end brackets.

separate parts; tie rods were still necessary for rigidity; some metal was wasted in that, the tub end; and the brackets were separate members.

Further redesign resulted in the product now in production, shown in fig. 3. In this design tub ends are completely eliminated. The brackets form the ends of the tub or shell. By a simple change in leg arrangement rigidity was sufficient to elimi-

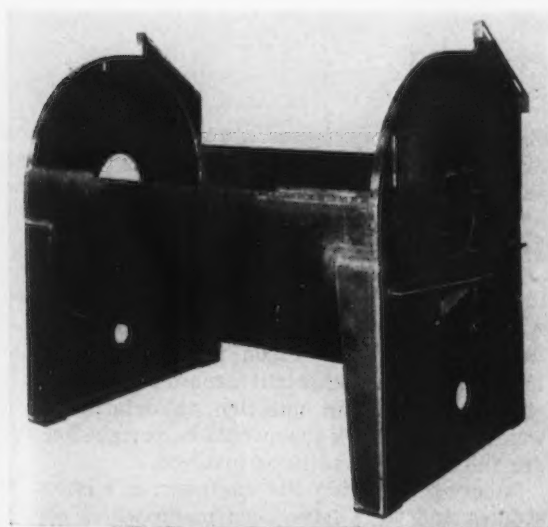


FIG. 4—The basic element of the washer is made of 3/16 in. and 1/4 in. steel plate. Redesign eliminated leaks and reduced costs.

nate the tie rods. The basic welded unit ready for assembly is shown in fig. 4.

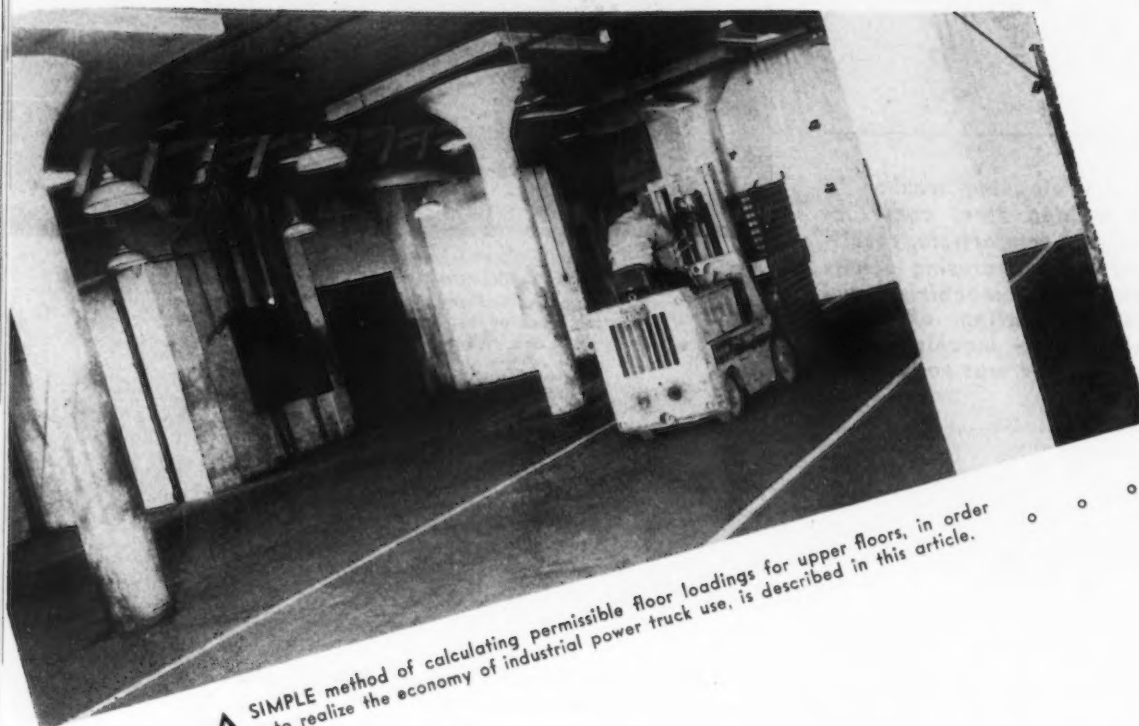
This assembly is made of mild steel plate, sheared or flame cut to shape. The tub is 3/16 in. plate with the end brackets 1/4 in. The first experimental unit was made with 3/16 in. end brackets, but because of distortion difficulties the thickness was increased. The tub is 42 in. diam and 64 in. long. The weight of the old basic assembly was 3510 lb while the welded unit weighs 3300 lb.

The end brackets and the tub bottom half are welded first as separate subassemblies. The brackets are simply tacked and welded without fixtures. The electrode used is the Lincoln Fleetweld No. 7, an E6012 electrode. The tub half is made by welding two quarter sections with a longitudinal butt weld. This is welded with Lincolnweld automatic welding equipment at a speed of 100 ipm, obtaining 100 pct penetration.

The tub half is then assembled to the end brackets. It is tack welded and positioned with the axis of the tub vertical for making the horizontal fillet welds. The resulting weldment forms the basic unit to which are added the revolving cylinder, drive unit, washing mechanism and guards.

The results achieved with this washer have been highly satisfactory. Appearance is improved. Operation is more efficient through the elimination of leaks in the seams. The rigidity of the machine is increased while weight is decreased. Manufacturing costs are reduced through the elimination of almost all machining and the reduction in assembly time.

When Can Industrial Power



A SIMPLE method of calculating permissible floor loadings for upper floors, in order to realize the economy of industrial power truck use, is described in this article. ° ° °

By CHARLES S. SCHROEDER

*Director of Engineering,
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THE flattening out of a sales curve places added stress on the need for every possible economy in manufacturing costs.

An important opportunity for cost reductions, too often overlooked, exists in the use of industrial power trucks on the 2nd, 3rd and 4th floors of a building.

Handling costs in the storage and processing operations on the upper floors of multi-story structures often amount to $\frac{1}{4}$ to $\frac{1}{3}$ of the total operating budget for those floors.

The problem of utilizing these upper floors arises in the loading the floors will take, as well as the ramps and elevators that serve them. Power trucks are heavy because they are built husky. And when handling large unit loads are heavier still.

On ground floors the problem is a rare one.

Architects and engineers always figure on heavy loads downstairs. That, of course, is why thousands of firms in multi-story buildings have fine and efficient material handling systems—on the ground floor only.

Building construction varies widely, and it is impossible to make a precise recommendation without a detailed technical study of the plant involved. For this reason it is always recommended that a competent architect or engineer study the plant in question to determine the weight of the truck that would be permissible under the specific conditions involved.

In order to guide the engineer, a number of studies and tests have been made which should help in making his computations. As a starting point with a prospective application, it is always desirable to arrive at approximate figures your-

Trucks Go Upstairs?

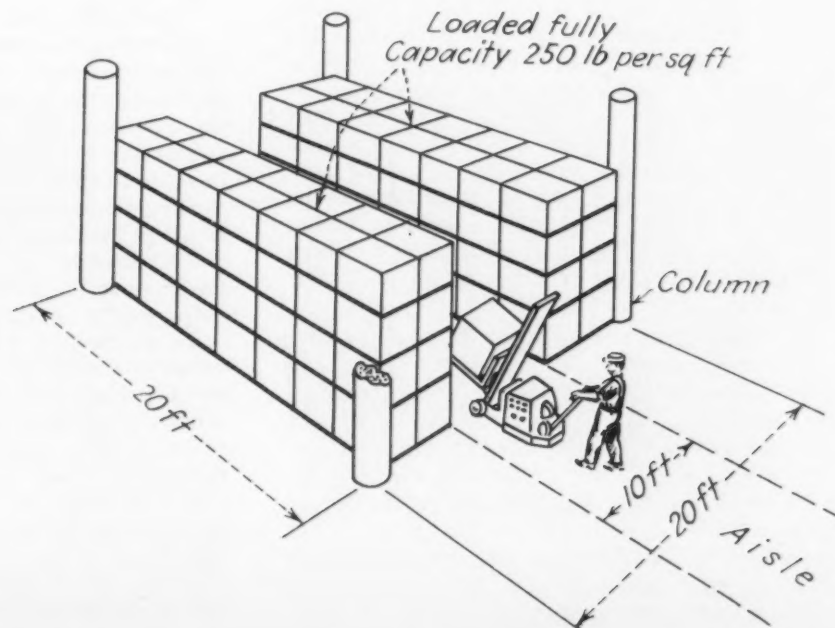
Use of industrial power trucks on the upper floors of a plant offers production economies often overlooked. A simple guide for determining when power trucks may be used upstairs is outlined by the author. The recommendations, based on extensive investigations of floor loading characteristics of these trucks, opens to management new avenues of cost reductions through full utilization of industrial trucks on all floors of a plant.

self, to determine whether it is worth while to engage an engineer for a more detailed study. The following approach will serve this purpose.

The common types of industrial power trucks in use today impose a dynamic load to the floor of approximately 25 pct beyond the static weight of the loaded machine. This figure has been arrived at by numerous tests in actual plants, using both actual strain measurement on full-scale structures and special test setups.

Measuring apparatus was applied to the underside of the floor to indicate deflection of the structure. The truck was driven onto the floor and stopped in the center of a bay and the deflection noted. The truck was then driven over the floor at full speed and the deflection noted. The truck was also run over an obstruction on the floor, causing a bump, with a corresponding increase in deflection. A further test was to drive the truck at full speed and come to a severe stop by apply-

FIG. 1 — How to determine permissible floor loadings for a typical upstairs area such as shown here is explained in this article.



ing the brakes, full power, in the middle of the bay, and the floor deflection noted. The load was raised and then lowered to the floor at full lowering speed, and the deflection of this impact noted. In all of these tests the maximum deflection recorded was 25 pct in excess of the deflection caused by a loaded truck standing still. From the data thus compiled it is our judgment that a factor of 50 pct be allowed as a safe figure for the increase of dynamic loading over static loading.

An industrial truck does not exert its full weight at a fixed point, but instead distributes that weight at each of its four (or six) wheels. However, the wheelbase and the wheel tread of trucks which operate in multi-storied buildings is relatively small, and for this reason it is considered that the truck applies its load at a single point, that is, exerts a concentrated load on the floor. Since the load is concentrated it will produce a bending moment approximately double that which would be produced on the beam structure of the floor by a uniform load. By this approach it is found that on a normal 20x20 ft bay the actual bending stresses in the floor slab are only approximately 85 pct as high as the computations would show if allowances were made for the actual wheelbase and wheel tread distribution. In other words, by considering the truck as applying a concentrated load, a slightly higher factor of safety than necessary may be allowed.

Establishing Load Factors

From the above it is possible to establish a factor of $1\frac{1}{2}$:1 due to the dynamic loading, and a factor of 2:1 for the concentrated load conditions, making an overall factor of 3:1 for the stresses in the floor slab imposed by a truck in operation, over that which would obtain on a uniformly loaded floor slab.

The next problem is to find what portion of the floor slab is devoted to carrying the weight of the loaded truck. This may be determined by considering the area of space devoted to aisle in one bay. For example, assuming a bay having 20x20 ft column spacing, as in fig. 1, in which is allowed an aisle 10 ft wide would give an aisle area of 200 sq ft of unloaded floor area in one bay devoted to the support of truck. If the floor has a rated capacity of 250 psi this would allow storing a load of 250x200 or 50,000 lb of static load in this aisle space. This aisle space need only support the moving truck, hence it is possible to determine the permissible loaded weight of the truck by taking 50,000 lb and dividing it by a factor of 3, which equals 16,600 lb as the available floor capacity for the truck.

This calculation assumes that the area at either side of the trucking aisle is not loaded beyond the rated floor capacity, either with goods or production machinery. Two or more trucks could pass each other over this area in a given bay at one time provided the combined weight of trucks did not exceed the computed total, which in the example cited would be 16,600 lb. This point is very important in considering floor capacities and shows up more particularly in front of elevators where it is often found that one truck will be com-

ing off the elevator before the second truck is run onto the elevator. For this reason, particular attention should be paid to the area in front of elevators when designing new buildings or reinforcing old buildings.

A further caution in connection with the floor slab in front of an elevator arises from the facts that: (1) It usually gets more traffic than other sections of the building; (2) the fatigue load at this spot is, therefore, likely to be greater, and, accordingly, (3) the floor should have a higher factor of safety. In addition it is often found that the column spacing in front of an elevator is less than that for other parts of the building. The length of aisle in that particular bay is shorter and has a lesser total carrying capacity if the floor at that point is thinned down to give the same static capacity per square foot as in other sections of the plant where the column spacing is normal. This condition is somewhat offset by the fact that goods are seldom stored in such a bay. Where the entire bay can be devoted to supporting the weight of the loaded truck or trucks, the entire bay area may be used in the computations.

The foregoing applies more particularly for the concrete slab type of floor construction, which, according to most architects, is one of the more desirable types of floor for buildings used as described above. Where other construction is employed, further studies must be made, which in some cases will involve the actual wheel loading. This is particularly true on wooden floors where only a few boards or planks may receive the entire load of a pair of wheels. Such a floor may be rated for a fairly heavy carrying capacity per square foot with a uniformly distributed load, but may not be capable of the concentrated loads produced by truck wheels. In such cases, further computations, and possibly tests, may be indicated. An engineer-architect, in most such cases, could devise a reinforcing means, such as steel plates, to distribute the concentrated wheel loads over a greater number of planks.

Concentrated Load Problems

Where steel beams are part of the concrete floor construction it is possible that concentrated loading may produce a problem because the span of the beams may be less than the span of the bay or the columns. This reduces the area devoted to supporting the truck and a detailed study should be made to allow for such a condition. Where such construction is used the thickness of the concrete would be less, and because of this lesser thickness the stresses in the concrete due to concentrated loading may be increased even though the space between these beams is relatively small.

To summarize, simple study can give an approximate indication of the weight of the loaded trucks which may be safely operated on a floor. When these computations indicate that the weight of the trucks proposed approach the maximum figures, a detailed study by a competent engineer should be made. If the weight of the loaded machines is comfortably below the maximum figures, and the building is in a good state of repair, it would be safe to apply a trucking system without such a detailed engineering study.

Broaching Typewriter Parts

STEEL carriage rails with a V-groove rolled into one side and aluminum die cast key lever bearings are among the parts for IBM electric typewriters that are processed in horizontal broaching machines. This work is being done on La Pointe machines at the new Poughkeepsie, N. Y., plant of International Business Machines Corp.

The steel carriage rails are of rectangular cross section except for the V-groove that is rolled in one side, and they range in length up to 16 in. Prior to broaching, they are nickel plated. Each rail requires a truing cut along the V-groove and a cut slot at the bottom of the V. For this operation, two parts are air clamped, one on each side of the fixture, in the broaching machine, as shown in fig. 1. There is a broach for the truing cut and one for the slotting cut for each part and the broached are arranged in tandem on the ram. Both cuts on two rails are completed in a single pass. Formerly, these rails were ground, but broaching is faster and provides a satisfactory finish.

The aluminum die cast parts are broached after a slot of rectangular shape is milled along one edge. The broaching consists of grooving both side walls of the slot, as shown in fig. 2, these grooves constituting undercuts. The die casting is held by screw clamps operating by T-handles, being located from the same pads used for location in milling the slot. There are also screw clamps operated by a socket wrench that hold the work firmly against the fixture seat.

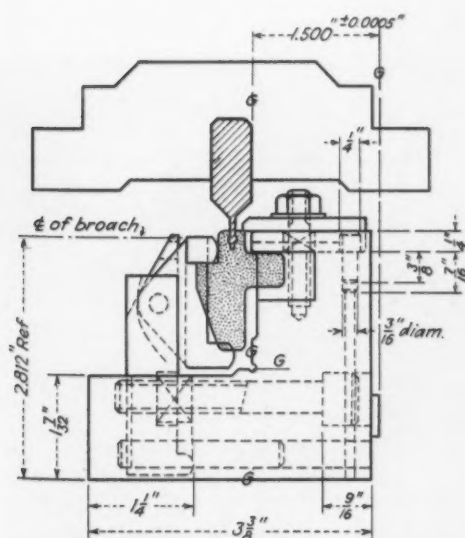
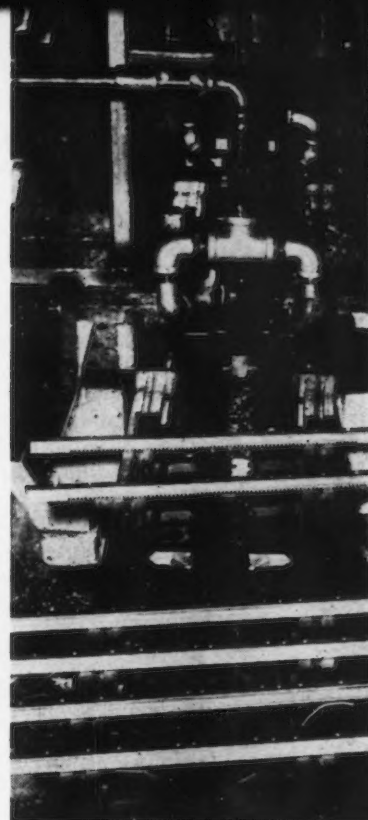


FIG. 2—A cross section of the aluminum die cast key lever is shown here with the broach in cutting position. The slot in the part is previously milled.

FIG. 1—This arrangement is used for broaching a V-groove and a slot in the bottom of that groove in typewriter carriage rails. There are two horizontal broaches at each side and each pair, in tandem, makes a cut lengthwise along each of two parts in each ram stroke. Six of these rails are shown across the machine.



The slot is broached in an upward position, with the broach hidden under the slide on which it is mounted. To show the broach in fig. 3, the slide was removed and turned over. A single pass of this broach cuts the required circular shaped groove in the slot, holding to the close dimensions specified.

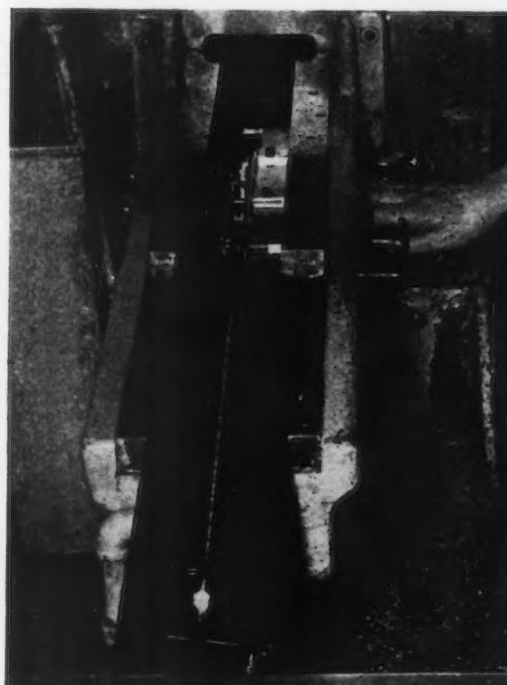


FIG. 3—The broach for grooving the slot in the key lever is shown here. As the blade is in a downward position during operation, the slide was turned over to show its details.

Shift to AC Welders

AFTER a careful study of power requirements and power factor conditions in the plant of a sheet steel and plate fabricator, 27 dc electric welders were replaced with an equal number of ac units. On the basis of the survey, it is estimated by the company, the Kaustine Co., Perry, N. Y., that the new welders will pay for themselves in 20 months through savings in power alone. These savings do not include any reduction in maintenance cost that may result from the change nor does it include the cost benefits derived from the fact that the ac equipment will weld about 20 pct faster than the dc welders previously in use.

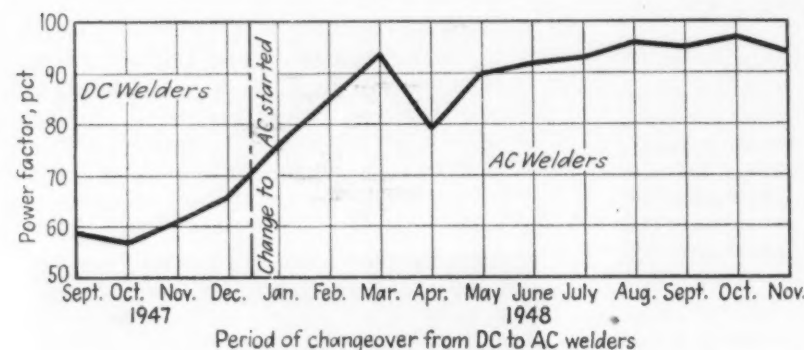
The study made by the company indicated for the applications involved there were distinct advantages favoring the ac welders. The dc equipment consumed 80 pct of the power used in the plant; the duty cycle of the dc welders was about 30 pct; and the lower power factor characteristics of dc equipment under no-load conditions (about

70 pct of the time) resulted in a lagging overall plant power factor of about 60 pct.

The calculations based on data in table I indicated that an overall plant power factor improvement to about 90 pct would result from the conversion to ac equipment. In addition, the maximum kilowatt demand that could be imposed on the power company system through this change would drop from 270 kw to 130 kw. The net result of these improvements in factors affecting power billing would be a saving of nearly 33 pct of the plant power bill each month. On this basis, the changeover was decided upon and the ac welders went into operation over a period of three months.

The estimates of power conditions was found to be accurate, as shown in figs. 1 and 2. Fig. 1 is a month-by-month curve of the power factor from September 1947, through November 1948. The power factor, as shown, increased from about 60 pct when dc welders were in use to about 90 pct after their replacement.

Equally interesting are the data in fig. 2, showing an improvement in power billing. The demand charge dropped from the \$700 to \$800 range during the period from September through December 1947, to the \$400 to \$475 range during July through November 1948, after the conver-



ABOVE
FIG. 1—As the plant shifted from dc to ac welding equipment, the plant power factor increased from about 60 pct to about 90 pct.

RIGHT
FIG. 2—Plant demand and energy charges showed a marked reduction as the conversion was completed and experience was gained in the use of the ac equipment.



Saves Power

By FRED B. MEAD
Electrical Engineer,
and
F. V. SCHILLING
Welding Engineer,
Westinghouse Electric Corp.,
Buffalo

By replacing 27 dc welders with 27 ac welders, the Kaustine Co., Perry, N. Y., fabricators and steel sheet and plate products, was able to realize its capital investment in 20 months from power savings alone. For this company's particular applications, a study, discussed in this article, showed that maximum power demand would drop from 270 kw to 130 kw and a savings of nearly 33 pct in power costs alone would be effected.

sion. The energy charge reduction likewise dropped from \$900 to \$1000 a month to about \$600.

Operators were allowed to use the ac welders for a trial period during which many tests were made to make certain that quality standards and workmanship would not be impaired by their use. Operators were also told what the changeover from dc to ac equipment meant to the company in power costs and in turn what this meant in subsequent benefits to the employees. This statement was followed up by a discussion of technique, applications, safety and speed of the new units.

Because of the diversified activity in overall plant operation, it is somewhat difficult to make an exact analysis of the total power billings. The company produces such products as septic tanks, domestic and industrial fuel oil tanks, semi-trailers, oil-fired air furnaces, power pressure vessels, truck tanks and custom-built products. Some of the welding operations are shown in figs. 3 and 4. However, the first few months of opera-

tion with ac welders has borne out the prediction that savings of about one-third of the total power bill would be effected. Thus, the capital investment of the conversion could be realized in 20 months.



FIG. 4—The body of this 275 gal domestic fuel oil tank is 12-gage, SAE 1020 steel, and the heads are 3/16 in. thick. The bodies are welded with 7/32 in., E-6011 electrodes at 230 amp and a speed of 30 ipm. The heads are welded with 3/16 in. E-6011 electrodes at 200 amp.

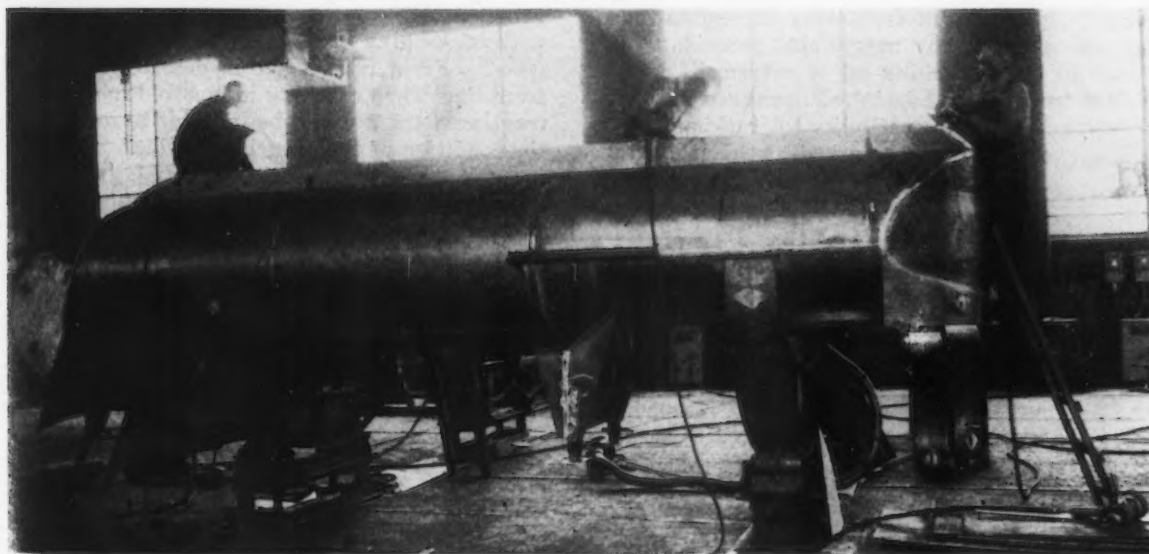


FIG. 3—Typical of the work done by Kaustine is the welding of this 3400 gal semi-trailer. E-6011 electrodes were used.

Effect of Contamination on Quenching Media

(Continued from Page 91)

extreme tendency in that direction. Why this condition should exist one cannot definitely say, particularly when it is considered that the hardenability pattern from specimens quenched in an 8 pct water in oil mixture more nearly resembles that of the curve derived from a pure oil quench, rather than showing the deeper hardening characteristics obtained from quenching with water or brine. The only explanation which can be offered is that even with the water thoroughly dispersed through the oil, some non-uniformity persists in the quench.

Fig. 5 shows additional information, which to some extent further substantiates the validity of the data previously stated. This chart represents the hardness from surface to center on 1-in. round test pieces of SAE 52100 steel quenched in water, brine, oil and a mixture of 8 pct water in oil. All test pieces used for deriving this information were 2 in. in length and 1 in. in diam, all taken from the same bar. The test pieces were austenitized in an atmosphere-controlled furnace for 1 hr at 1550° F, quenched in the various media, cross sectioned and measured for hardness value on the cut sections. It will be observed that both water and brine show only about one point Rockwell C decrease from surface to center, while the oil quenched specimens showed a slightly lower initial hardness which decreased more rapidly as the center was approached. The specimens quenched in water-oil emulsion showed low and nonuniform results and the curve represents the average.

It was also interesting to note that all specimens of this type quenched in the emulsion were found cracked either after quenching or after cross-sectioning with an underwater cutoff wheel. None of the specimens quenched in water, brine or oil were found cracked so that this method of testing further indicates that nonuniformity is the principle cause of cracking. All results thus far indicate that any appreciable percentage of water in the quenching oil is extremely detrimental from the standpoint of decreased hardenability as well as susceptibility to cracking.

The question might be asked at this point as

to what effects other compounds which might easily be present in fuel oil would have on the quenching power. Since water forms an emulsion it was decided to try diluting the oil with a low flash point mineral solvent which would form a solution instead of an emulsion. Test specimens, the same size and from the same bar as those used for the other data shown in fig. 5, were austenitized in identical manner and quenched in oil containing 5 and 10 pct gasoline, respectively. These specimens were then cross sectioned and measured for hardness in the same manner. It was not surprising to find, in fig. 5, that the depth of full hardness was actually increased by the gasoline dilution. Specimens quenched in the 5 pct gasoline-oil mixture (not shown) showed results almost identical to those found with the use of straight oil. Specimens quenched in the 10 pct gasoline-oil solution showed a marked improvement in hardenability as compared with specimens quenched in straight oil.

Fig. 6 shows results of end-quenched specimens using straight oil, 5 pct gasoline in oil and 10 pct gasoline in oil. It is obvious that the curves are essentially the same for the three different quenching media. It must be remembered that the experiments involving the use of gasoline with oil, in particular, were done primarily for academic interest, and even though oil diluted with gasoline might be an excellent quenching medium for some purposes, it is extremely dangerous. It should never be attempted even in the laboratory without first taking precautions against fire or even a mild explosion.

Although some of the data presented, of academic value only, there is no doubt that this information can be applied to an advantage in the heat-treating plant. All results indicate that compounds forming an emulsion with quenching oil serve to seriously impair its intended function, while solvents forming a true solution with quenching oils may increase quenching power. From results herein described it would seem that when cracking is involved in the heat-treating plant it would be in order to investigate the condition of the quenching media.

Wear Proofing Centerless Grinder Rests

WEAR-PROOFING centerless grinder rests by brazing strips of cemented carbide along the length of the rest is reported to be increasing the life of these parts more than 350 times.

The carbide strips are usually rectangular in cross section, averaging about $\frac{1}{4} \times \frac{3}{8}$ in. Common practice is to hold individual pieces to a 6

in. maximum length. In rare cases, carbide sections as long as 42 in. have been successfully applied.

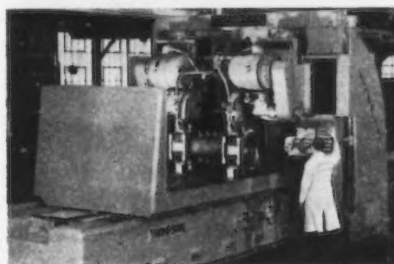
In a typical instance, one large manufacturer's production records show that the carbide protected rests averaged as high as 575,000 pieces between reconditionings as compared to an average of 1600 for high speed steel grinder rests on the same operation.

New Production Ideas . . .

New and improved equipment described in this issue are a gear hobbing machine, surface and carbide tool grinders, a production press for drawing, forming, and assembly, an isothermal quench furnace, double-end taps, drill sets, and a steam-jet cleaner. A torque analyzer, a time-temperature program controller, and a rate of flow indicator are also discussed.

THE hobbing of small spur, spiral and bevel gears with high accuracy and on fast production schedules is possible on a new gear hobber. The machine generates gears from 0.050 to 6 in. OD and delivers 12 hob speeds from 109 to 1259 rpm. The hob spindle turntable swivels 105° to the left and 135° to the right. The machine affords helix leads from 0.800 to 130 in. and operates on a 1 hp motor. Speed, feed and indexing can be selected independently, mak-

cally or horizontally. The machine illustrated has two heads each operating independently or together and grinds wear strips in the horn guides of bearing and wheel casings. Clearance is such that

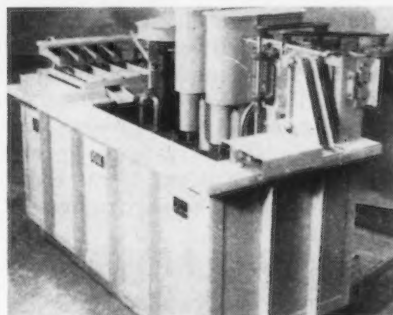


wheels and all are lifted into position at the time of grinding to permit time saving. All cycles of operation on Hydrail machines are automatic although hand control is provided. Table speed is adjustable from 10 to 100 fpm. Hydrail is furnished with 36 and 48 in. vertical heads and 36 in. and over horizontal heads. The entire machine weighs over 65 tons. *Thompson Grinder Co. For more information check No. 2 on the attached postcard.*

Isothermal Quench Furnace

FOR martempering and austempering heat treating processes, a new salt bath quenching furnace assures rapid and uniform cooling of the work by providing a vigorous, upward flow of molten salt in headers, into which the hot work is introduced. The salt is circulated by submerged pumps. A separate pump for each header concentrates a great volume of liquid salt into a confined quenching area. It is said to be possible to obtain hardness equal to oil quenching together with the benefits of martempering and austempering — reduced distortion and the elimination of quench cracks. For extracting the high-temperature chloride salts carried

over from the austenitizing bath, a separate steel tank is built into one end of the unit. A motor driven pump lifts the salt from the bath to a trough that is cooled constantly by blast of air that chills the salt to the optimum separating temperature. The chloride contaminant is precipitated out of solution and collected in wire mesh filter baskets; the purified nitrate salt—still molten—enters the separation chamber. From there it flows back



into the isothermal quench bath, so that the whole cleaning process is on a continuous basis. *Ajax Electric Co. For more information, check No. 3 on the attached postcard.*

Carbide Tool Grinder

A NEW carbide tool grinder has been designed for grinding tungsten carbide tipped tools and other hard metal tools requiring keen cutting edges and extreme accuracy. It will handle rough, semi-finish and finish grinding, using an 8-in. vitrified wheel for rough or semi-finish, and a 6-in. diamond or vitrified wheel for finishing. Cool cutting action of the wheels is insured by a steady flow of coolant, force fed by an electrically driven pump mounted inside of the pedestal. The semi-steel tool rest table, 18x8 in., has an angular adjustment of 15° above and 30° below the horizontal position. A drum type

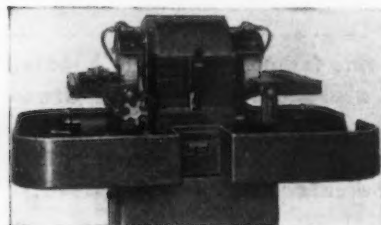


ing possible the quick selection of a speed and feed to suit any material being worked and any size gear being hobbled. It reduces setup time, fitting the machine to the needs of the job shop and the shop having long runs. *Hamilton Tool Co. For more information, check No. 1 on the attached postcard.*

Surface Grinders

A NEW line of surface grinders handle large work from rough to finish up to 48 in. both vertically and horizontally with maximum table length up to 240 in. The wheel head or heads are mounted on a massive bridge for rigidity and grind either verti-

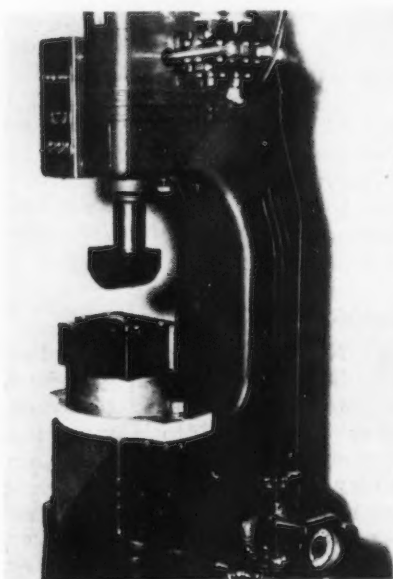
reversing switch controls forward, stop and reverse movement. This Model 60 is equipped for wet and



dry grinding. Willey's Carbide Tool Co. For more information, check No. 4 on the attached postcard.

Production Press

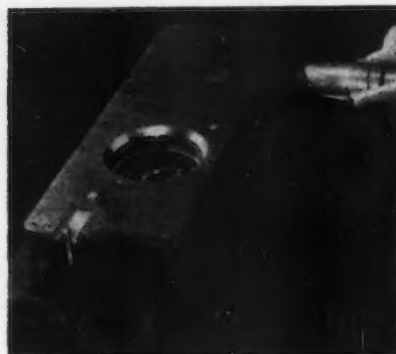
A PRESS powered by compressed air with hydraulically controlled ram movement has electronic timing features that provide an adjustable preset rate of movement in closing the die or performing an operation. The press is adaptable for drawing, forming and assembly. Ram pressure is adjustable from 100 lb to 2 tons and ram travel is adjustable from 1000 down to 10 ipm or less by manipulation of the controlling valves. The electronic control panel provides for one or more stop periods of varying duration for positions to meet the requirements of the particular job.



Presses are furnished in several models and in capacities suitable for slow or very rapid operation, and provided with one or more adjustable ram positioning stops. Taber Instrument Corp. For more information, check No. 5 on the attached postcard.

Torque Analyzer

THE tightening capacity, range and adjustment of electric or air powered tools can be determined before use or while on the line, with the Livermont analyzer. On direct drives the instrument will demonstrate the torque at which the clutch releases and at what



rate torque increase is accomplished beyond the releasing point if held into engagement. On the cushion clutch drives it will show at what torque the clutch releases and begins to impact, at what rate torque is gained after the impact starts, and the ultimate torque capacity of the tool. On pure impact, the power delivering capacity of impact, the time required to reach a certain torque, and the ultimate capacity of the tool is revealed. The analyzer will also read high rpm kinetic energy tools. Rugged in construction, the instrument is mounted on a portable stand. Overall measurements are 3½ ft high x 2 ft 2 in. long x 1 ft 8 in. wide. Weight is 195 lb. No power connection is required, the device is entirely mechanical. A master torque wrench is furnished with each unit to check accuracy periodically. Richmond, Inc. For more information, check No. 6 on the attached postcard.

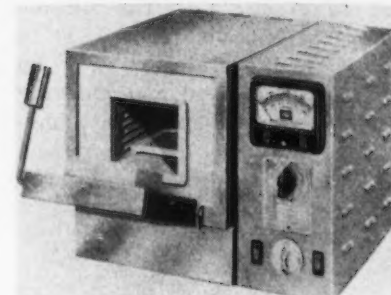
Test Blocks

NEW precision test blocks are said to give accurate test readings on any Rockwell type hardness tester, because the blocks are held to close tolerances and have a fine finish. They are available in hardness grades for all Rockwell scales, and the limits covered by each block are stamped on the edge. A master diamond checking set includes a gold plated diamond penetrator and two test blocks, one for the higher and one for the lower

range of hardness values. The diamond penetrator is used when checking the owner's machine. Clark Instrument, Inc. For more information, check No. 7 on the attached postcard.

Electric Furnaces

POLISHED stainless steel construction, furnished as standard on all models is a feature of the new Blue M line of electric furnaces. The furnaces are equipped with Modella resistance wire elements that are non-oxidizing, non-flaking, and practically impervious to attack from sulfur and its compounds. A Magic trigger control maintains any temperature within its range. Large, easy-to-read pyrometer scales range from 0° to 1100°C, 0° to 2000°F. Insulation is provided by 2½-in. fire brick on all sides. Four



automatic models range from 15x11¾x10½ in. to 19½x12x14½ in. Two non-automatic models are 12 or 16¾ in. deep x 13½ in. wide x 14 in. high. Modern Electric Laboratory. For more information, check No. 8 on the attached postcard.

Lightweight Chuck

A RUGGED new Whitaley chuck has a body of forged heat treated aluminum alloy, reducing weight and thus providing high spindle speeds. The light weight facilitates quicker starts and stops, and eliminates spindle drag. Decreased weight on the spindle reduces stress and strain on the braking mechanism and other parts of the machine tool. Holding capacity of small spindle lathes is increased through lighter spindle loads. Jaws, scroll, and pinions are made of heat treated alloy steels. Scroll and jaw threads and gear and pinion teeth are precision machined. The bore of the scroll is machined true with spiral threads. The chuck is adaptable to all spindle noses and is available

in sizes and types up to 15 in. *Whiton Machine Co. For more information, check No. 9 on the attached postcard.*

Oil Pilot Valves

NEW oil pilot valves are used for remote control of oil pressure operated four-way hydraulic valves. Operational control is gained by a fork lever that, when actuated by a moving part of the device being powered, permits the remote reversing of the main four-way valve. Both fork lever and fork and hand lever types are supplied. Mountings are pipe line, base, foot, and panel. Oil pilot valves may have all ports blocked in neutral, all ports



open to exhaust in neutral, and cylinder ports open to exhaust and pressure port blocked in neutral. *Gerotor May Corp. For more information, check No. 10 on the attached postcard.*

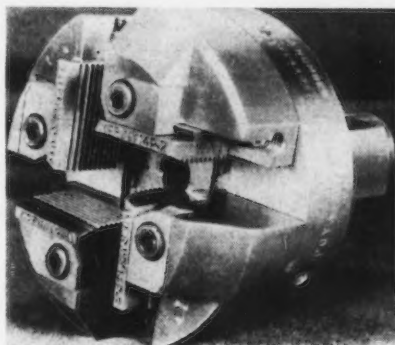
Spray Booth Compound

NON-FOAMING water wash spray booth compound, called Differentiated Klarifant, permits the use of higher concentrations which in turn keeps the hydraulic system of the booth clean. The material is recommended for use in down-draft booths and controls paint overspray effectively. *Du-Bois Co. For more information, check No. 11 on the attached postcard.*

Die Head

FOR use on automatic machines for threading street ells and similar cast iron fittings where clearances are limited between the die head and the machine, $\frac{1}{2}$ and $\frac{3}{4}$ in. solid adjustable die heads have been developed. The diameter of the die head is $3\frac{3}{4}$ in. and to provide further clearance, the chaser holders are beveled off on a 45° angle. The die head consists

of a heavy body with the chaser holders mounted on the face of the head. Individual adjustment of $\pm 1/32$ in. on the pitch diameter is provided for each chaser holder. A different set of holders is required for each diameter. The head is driven by means of square on the shank and it is centered by a cylindrical portion of the shank. It is



held in position by a draw rod through the spindle. *Landis Machine Co. For more information, check No. 12 on the attached postcard.*

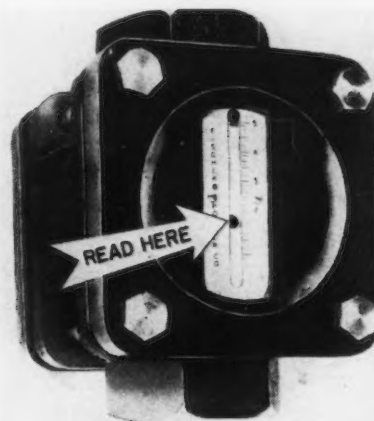
Insulated Electrode Holders

A NEW insulation that completely covers the electrode gripping head of Shortstub electrode holders designed to deposit the total fluxed length of welding electrodes, withstands the direct heat of the arc when the last inch of the electrode is being deposited. This new Lifeguard insulation has a high resistance to impact and will not chip or crack. All metal parts of the holders are covered with the insulation eliminating the danger of electric shock even when used in wet areas. *Bernard Welding Equipment Co. For more information, check No. 13 on the attached postcard.*

Flow Guide

A NEW rate of flow indicator useful for clear and opaque streams features the area principle of flow measurement. This Magna-Sight flow guide uses the F&P standard Bull's Eye body with a fixed diameter orifice at its vertical inlet. A tapered plug is suspended in the fluid stream within the orifice. A permanent magnet imbedded in the plug causes an external steel ball to move against a calibrated flow scale when increasing flow rate, causes the plug to rise. A heavy glass window per-

mits visual observation of the fluid. Made in eight sizes from $\frac{3}{4}$ to 4 in. (screwed or flanged) the guides measure maximum flow rates of



$3\frac{1}{2}$ to 250 gpm. The guide is made of iron, steel, brass, bronze and stainless steel, has just one moving part in the fluid stream, and fits into a vertical section of pipe. *Fischer & Porter Co. For more information check No. 14 on the attached postcard.*

Program Controller

CONTROLLING temperature by predetermined schedules is the function of the Model CPR time-temperature program controller. Its upper section contains an electronic controller having plug-in compartmented construction, high rating snap action control contacts, and featuring uniform control levels independent of line volt-

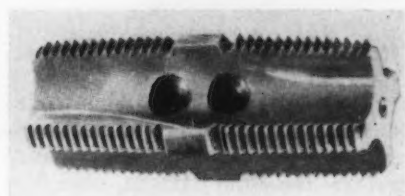


age variations. The lower compartment contains a synchronous motor driven cam that positions the control index arm automatically as called for by the cam contour. The

cam is easily marked with the scriber provided and may be sheared to produce any desired time cycle on the printed disk. Safety clutches safeguard the mechanical drive. Standard and special scales range from -300° to $+3400^{\circ}$ F or C equivalent and may be coupled with two position, multi-position, or porportioning control systems. *Taco West Corp.* For more information, check No. 15 on the attached postcard.

Double-End Taps

D-LINE pipe and machine double-end taps are reversible, having threads on both ends.



When one end wears out, the tap is turned around and production continued. Taps are made from high-speed steel, with threads ground from the solid after heat treatment. Flutes are ground to the proper hook or rake for the type material to be tapped. Floating-tap holders developed for the double-end tap incorporate the universal float. Standard machine tap sizes range from $\frac{1}{2}$ in.-13 NC and 20 NF to $1\frac{1}{2}$ in.-6 NC and 12 NF. Standard straight and taper pipe tap sizes range from $\frac{1}{4}$ in.-18 threads, to $1\frac{1}{4}$ in., 11 $\frac{1}{2}$ threads. *National Precision Tool Co.* For more information, check No. 16 on the attached postcard.

Miniature Speed Changer

THE miniature, variable-ratio speed changer weighs less than 6 oz yet can deliver up to 70 oz-in. torque and 1/40 hp. Ratio of input

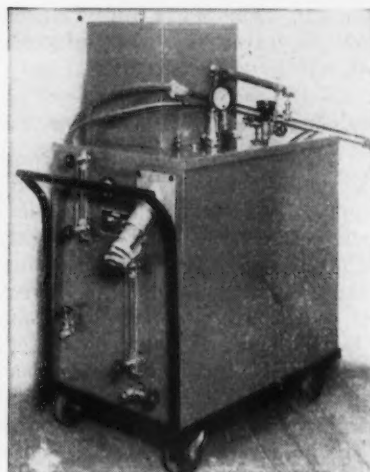


to output speeds is infinitely adjustable between 1:6 increase and 6:1 decrease, with a total speed range of 36 to 1. A dial and pointer in-

dicate ratio setting and the adjusting knob is equipped with friction drag to prevent ratio wander. Maximum output torque is obtainable at zero speed and operating speeds as high as 20,000 rpm are practical. *Metron Instrument Co.* For more information, check No. 17 on the attached postcard.

Steam-Jet Cleaner

THE new Speedyelectric steam-jet cleaner features fully automatic operation without any pumps, motors or moving parts to wear out. High pressure steam from its built-in boiler is mixed with the proper amount of detergent at the jet, and boiler and jet are under fingertip control of the operator. A pressure tank assures positive flow of detergent. The steam-jet cleaner can be used for cleaning machine tools and factory equipment, degreasing tote boxes and parts, and general plant cleaning. It weighs



500 lb, is mounted on an all steel dolly with ball bearing rubber tired swivel casters, and operates on ac 220 v and over, single or polyphase. *Livingstone Engineering Co.* For more information, check No. 18 on the attached postcard.

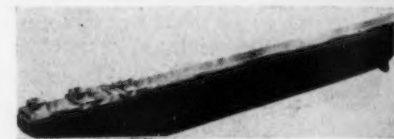
Vibration Dampener

A NEW rubber vibration dampener with a semi-pneumatic action, called Shock Stops, isolates vibrations set up by motorized equipment, when placed between the base or feet of the equipment and the floor or foundation. Shock Stops are effective in protecting balances, electronic devices and similar delicate equipment from vibrations coming in from the outside. The waffle-like grid of the design when laid on a smooth surface

tends to trap air. Vibrations of unwanted amplitude are diverted by this air through the supporting ribs and do not pass to the supporting surface. Shock Stops are available in sheets 18x18 in. to be cut to the required size and in round shapes $3\frac{1}{4}$ and $2\frac{1}{4}$ in. diam. *Connecticut Hard Rubber Co.* For more information, check No. 19 on the attached postcard.

Measuring Machine

A NEW measuring machine for external and internal measurements is adaptable for use as a master check and for determining extremely accurate dimensions on pin gages, standard bars, and end



measuring rods. The measurements are obtained between hardened steel anvils, but flat jaws may be substituted for the round plugs if desired. The precision steel scale is graduated in inches and in millimeters. The slide carrying the vernier and measuring anvils has a fine adjustment screw. Vernier is the easy reading Chesterman type, 2,450 in. long. Width of the machine is 8 in., and height is 10 $\frac{1}{2}$ in. Model No. 1 is 8 ft long and No. 2 is 11 ft long. The machine weighs 300 to 400 lb. *George Scherr Co.* For more information, check No. 20 on the attached postcard.

Drill Set

A NEW drill and countersink set consists of seven sizes with OD ranging from $\frac{1}{8}$ to $\frac{7}{16}$ in. Drills are made of 18-4-1 high speed steel with ground flutes that provide adequate chip removal.

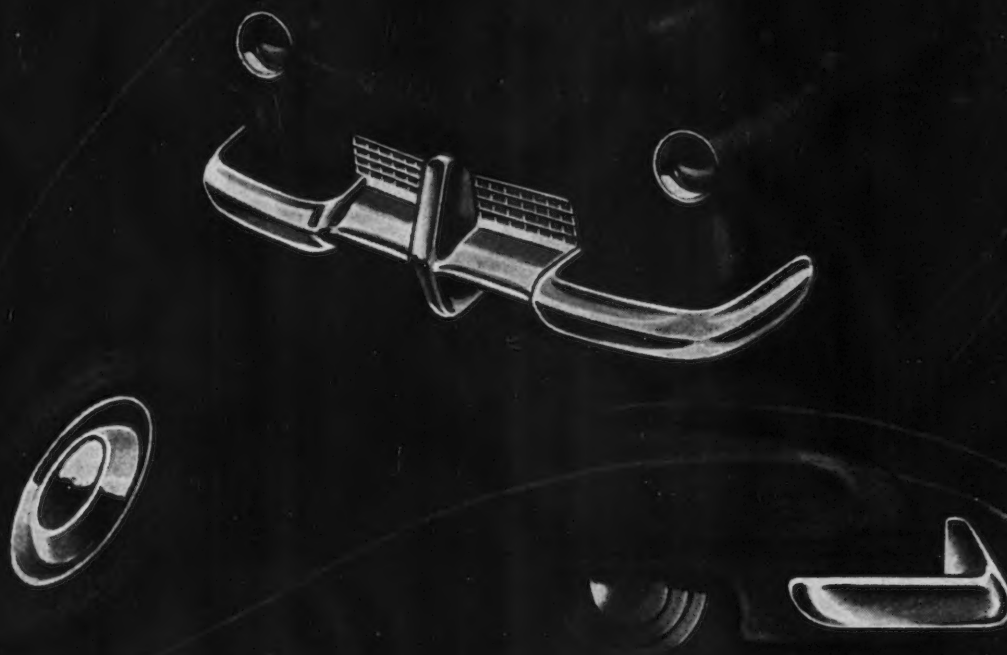


Each set is packed in a hardwood box with a separate compartment for each drill. *Keo Cutter.* For more information, check No. 21 on the attached postcard.

The trend is to

N-A-X

HIGH-TENSILE STEEL



Since 1940, when Great Lakes Steel pioneered the application of high-tensile, low-alloy steel to cold-stamped automobile bumpers, there has been a growing trend to N-A-X HIGH-TENSILE steel in the automobile industry.

Today, every car manufacturer is using the inherent better properties of N-A-X HIGH-TENSILE steel for some part of his automobile.

Bumpers and grilles—hoods and fenders—body panels and deck lids—frames and bracings—wheels and hub caps represent a few of many applications of N-A-X HIGH-TENSILE steel to the modern car.

N-A-X HIGH-TENSILE MEETS ALL REQUIREMENTS OF S.A.E. 950



GREAT LAKES STEEL CORPORATION N-A-X ALLOY DIVISION • DETROIT 18, MICHIGAN
Unit of National Steel Corporation

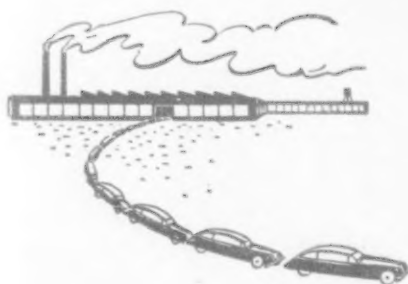
THE IRON AGE, May 5, 1949—107

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Assembly Line . . .

WALTER G. PATTON

• Auto industry continues peak production in the face of receding industrial buying . . . Demand for steel for service parts is tapering off . . . A reader comments on automatic transmissions.



DETROIT—Despite reports of a faltering U. S. economy, the automobile industry is continuing to hold its production sights high. This is not wishful thinking, say auto executives. Today's auto production schedules are justified, they say, by sales reports reaching Detroit from field representatives.

Admittedly, the industry has its fingers crossed. No one here is expecting the auto industry to stand alone for long if other major U. S. industries go into a tailspin. But for the moment, at least, there appears to be justification for auto production schedules that are at peak levels for the postwar period and, in some instances, actually exceed the 1941 rate of production.

Take the case of a producer of cars in the medium priced field. According to some of the "experts," practically all medium priced cars, regardless of make, are piling up in the field. Actually, the facts are quite different, THE IRON AGE was informed this week.

In the case of this particular producer the actual supply of cars in the field at present is less than 4 days. At the moment, the factory

is being pressured by its dealers in Washington, Atlanta, Dallas and other distribution centers for more cars. The West Coast business is picking up. New England is "not too bad." Moreover, the highest priced cars in the line continue to account for as much as 30 pct of present sales.

Admittedly, there is some concern about used cars. At the present time, a little more than 3 weeks' supply of used cars is in dealers' hands. Efforts are being made to build up a sales force to move these cars. The industry is well aware of the fact that 30 days' supply of used cars is a much desired goal. It is equally aware of the fact that many dealers have practically ignored used car sales during the postwar period.

Until now, however, it has been more profitable for dealers to wholesale rather than retail used cars. In many instances, used car sales organizations have not even been in existence.

Looking forward to the day when the industry will again have to move at least two used cars to sell a new one, all car dealers are making hurried haste to put together sales staffs to handle used cars. Progress has been slow. There are many obstacles. But thus far, according to informed sources, used car sales have not been a pressing problem for most producers. This is not to say the problem may not become more acute in the future.

THIS particular car maker is not alone, it is indicated. This week, Pontiac, reported its postwar sales hit a new high during March, exceeding the best previous postwar month by 10 pct. Nash has also reported that the first and second 10-day period in April have broken the 20-year sales records of the company. Earlier this month, Nash reports its March sales were 40 pct above February.

Obviously, there are no reports available as to what concessions dealers are making in order to move such a high volume of new cars. Have used car allowances been boosted? Can the buyer purchase certain makes of car "at a discount" from his dealer as is frequently reported?

Of course, such practices were

usual and accepted in the prewar era. Before the war, car dealers expected to trade away a substantial part of their discounts in order to sell a new car.

Perhaps the most significant thing about the present situation is that, up to now, the car dealers have offered terms to the prospective buyer that were apparently sufficiently attractive to keep up new car volume. Just how long this situation will continue is anybody's guess. It is difficult, however, to find an automotive executive who is willing to predict a near termination of the present lush market for new cars. Admittedly, when the present market is actually filled, the demand for material to build new cars may melt away in an astonishingly brief period of time.

There is, however, one segment of the auto market in which important changes have taken place during the past month. This decline has occurred in the demand for service or replacement parts. The experience of one prominent car producer may be typical.

The first 3 months of 1949 were the best in the company's history from the standpoint of dollar volume. Actual physical volume was also at an all-time peak. However, the situation has changed abruptly during April. Dealers have suddenly become inventory conscious. Ordering has slowed up. With the improvement in steel availability, the number of items on back orders has been reduced significantly. Since the turn of the year, for example, the number of items on back order has been reduced more than half. Part of this reduction may be accounted for by the fact that certain nonfunctional parts have again been put in production. More car producers concede that further reductions in dealers inventories of service parts are probably inevitable.

AAVAILABLE reports lead to the conclusion that the first real break in the demand for automotive steel may come from this sector of the industry's operations. Any break in the new car demand must eventually be added to this curtailment.

Looking behind the car makers to the second row, figuratively

DIES

This is a forging die cavity for jet engine impeller blades. P&W Keller Machines cut thousands of forging dies, some simple and some very complex. Tracer-controlled milling — Kellering — does the job economically.



MOLDS

This steel mold for a precision aluminum casting is being cut from a wood master. Plaster or any other readily worked material is suitable for the master form. Plastic molds are made the same way.

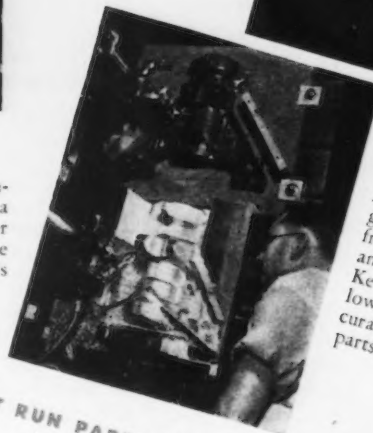
PATTERNS

Here are two metal manifold patterns being cut simultaneously from a wood master pattern. Kellering is the quick way to get into production.



EXPERIMENTAL PARTS

An aircraft landing gear part being cut from a solid steel billet and a wood master. Kellering is the fast, low cost way to get accurate finished test parts and pilot models.



SHORT RUN PARTS PRODUCTION

An aircraft company needed fifty magnesium wing leading edge segments for a new experimental plane. Angles and shape were complicated but Kellering solved it easily.



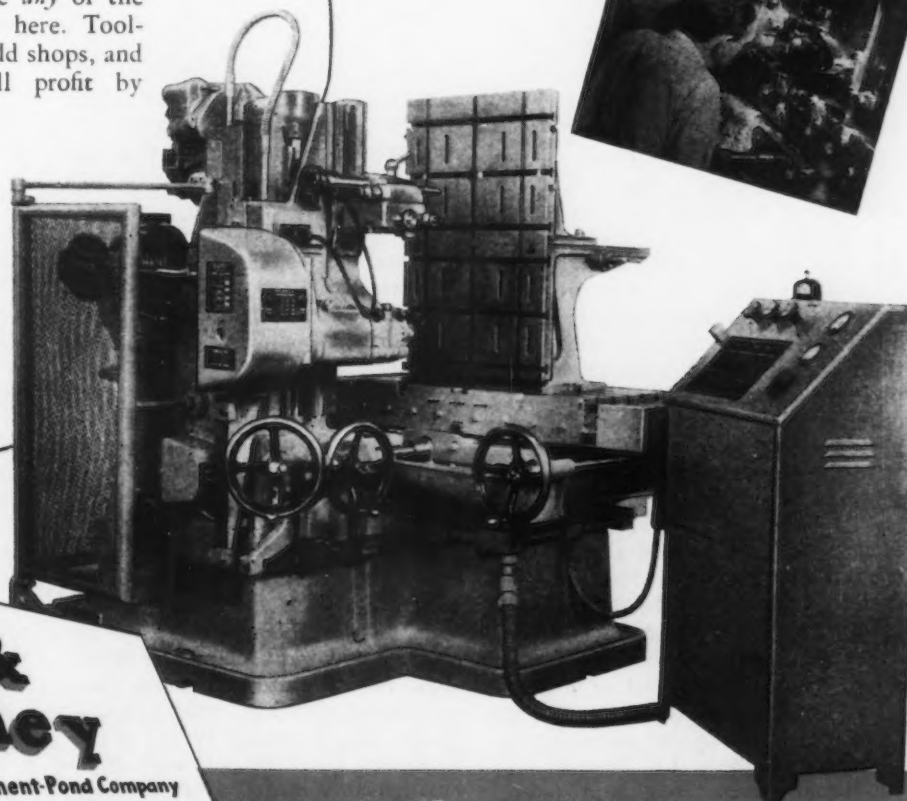
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Pratt & Whitney

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Keller Machines

Great Lakes Reduces Its Prices on Sheet, Strip

Detroit

• • • A reduction of \$2 per ton in the base price of hot-rolled and cold-rolled NAX high tensile sheet and strip steel and the withdrawal of extras which became effective Oct. 1, 1948 has been announced by Great Lakes Steel Corp.

The new schedule brings the price of hot-rolled NAX sheet and strip steel at the mill to 5.15 cents per lb. The new mill quotation on

cold-rolled high tensile sheet and strip steel is 6.25 cents per lb. These prices are now in effect.

According to a company spokesman, the pricing schedules on extras for NAX steel are the same as the extras applying to hot-rolled and cold-rolled carbon sheet and strip (IRON AGE, Apr. 28, p. 128). The price reduction was made, it is reported, to meet competition on these grades of steel.

speaking, of the automobile industry, it has been determined that cuts in the demand for parts for original equipment have, thus far, been insignificant. There have been reductions in the demand for replacement parts and the downward trend here is growing. But even in this field, the total demand is close to peak levels for many suppliers. Local steel sources concede that with rare exceptions this has been the case up to the present time.

However, proceeding still further back to the "first line" of automotive suppliers one is able to see unmistakable indications of a break in the chain that seems destined, sooner or later, to reach the automotive centers unless the present situation is reversed.

Reference is made, of course, to the "front line" of automotive suppliers—the foundries and tool and die makers. Both of these classifications are operating far below break-even levels at the present time. Most foundries making production items continue to maintain their schedules but foundries supplying dies, machine tool bases and other specialized castings are staggering badly for lack of business. It is the exception where a Detroit jobbing foundry is working more than 3 days a week. Further indication of the reduced activity in the foundry industry is found in the fact that scrap sales have dwindled to a point where they are all but nonexistent.

The present low level of operations in the Detroit foundry and tool and die industries has already precipitated the usual reports of cut-throat competition and price cutting. Tool makers who say they have pared their costs to the bone find themselves losing jobs they thought were "in the bag." Even

so, the amount of new tooling being purchased here is only a shadow of the average postwar volume.

Much the same situation prevails in the foundry industry and auto buyers of castings agree that castings can now be purchased by the auto industry at prices that are substantially below the amount paid throughout the postwar period.

Thus, the first line of supply to the auto industry has already been clipped. According to past experience, the parts makers will be hit next if the present business recession continues. Last to feel the pinch will be the car builders themselves. Then the steel supplier can expect to receive the combined impact from curtailments all along the line. However, auto makers are themselves convinced that this day is still at least several months away.

IN past issues, THE IRON AGE has commented at length on the problem of operating economy in a motor car. Believing this particular subject to be of interest both to the car driver and the supplier to the industry, we would like to quote from a reader of IRON AGE on this subject. Both the point of view of the writer and the facts disclosed are seldom emphasized.

The Assembly Line had previously indicated that none of the automatic transmission devices thus far available offers the car owner increased economy of operation. As is pointed out here, there are some driving conditions in which the driver actually enjoys increased economy although these savings come largely from the overdrive feature rather than from the self-shifting device.

"I had an Olds six with Hydra-Matic and found there was increased

gas mileage in cross country driving . . . I got 18 miles per gal in the open country going as fast as expedient. I believe this is because . . . there is an overdrive fourth gear in the transmission . . . However, the automatic shifting on this car does permit one to go about 25 pct further in a day before getting too tired . . .

"I am at present driving a Studebaker Champion which seems to me about the right size of car for going back and forth to work . . . It also has the advantage of overdrive which compensates for the general tendency to put too much power in this country's cars . . . Most of my driving is in overdrive and I can't do better than 20 miles per gallon on a monthly basis which seems not good enough for the size and power of the car."

It may be pointed out that the driver has a great deal to do with gasoline economy. One of the major oil companies has a contest each year to determine maximum miles per gallon that can be obtained by careful driving. Standard cars are made to run between 55 and 60 miles per gallon. After adjustments to tires, manifolds, etc., as much as 90 miles per gallon has been reported. This is, of course, on level ground free of traffic.

New Car Registrations, Sales Above '48 Quarter

Detroit

• • • Estimated new car registrations for the first quarter of 1949 will exceed the same period of 1948 by 11 pct, according to a recent estimate by R. L. Polk & Co., Detroit, statisticians for the automobile industry.

Polk estimates first quarter sales for 1949 at 925,000 units compared with 836,409 for the corresponding period of 1948.

Polk said January new passenger car registrations were slightly lower than the corresponding month of 1948. February sales exceeded the same month last year by a small margin. Preliminary estimates indicate that March, 1949, is running slightly ahead of the same month a year ago.

New truck registrations for March are running more than 7000 units behind the February total. January new truck sales were also lower than the same month of 1948.

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OVER 50 YEARS OF FORGING PRODUCTION EXPERIENCE

• Freight absorption not illegal per se . . . Rigid conduit case strengthens FTC on basing points . . . FTC expects steel industry to begin absorbing freight.



WASHINGTON—As far as the top legal staff of the Federal Trade Commission is concerned, the steel industry can return to freight absorption any time it wants to. What's more, the industry can do so without fear of prosecution from the Federal Trade Commission with a minimum of "ifs."

This revelation was made to THE IRON AGE last week by key members of the Commission's staff. While it must be remembered that these views have not yet been announced as the official views of the Commission, they are, nevertheless, of particular significance because of the growing desire of the FTC to make amends to industry for the Supreme Court's failure last week to issue a decision in the rigid steel conduit case.

Influential FTC staff members who have been active in the various basing point cases feel that the reaffirmation of the Commission's findings and order in the rigid conduit case strengthens their view that freight absorption per se is

not illegal. One of these individuals went so far as to tell THE IRON AGE that he confidently expected the steel industry to bear out the above contention by again beginning to absorb freight when steel salesmen are beating on the door for business.

While the Commission's staff will strive to interpret the conduit order for business in order to forestall legislation by Congress, certain officials declare that the conduit order, now the law of the land, is clear in many points. Simply stated, the conduit ruling declares that a basing point system accompanied by freight absorption and refusal to sell f.o.b. mill is an unfair method of competition regardless of combination or conspiracy.

It is held that the Commission did not find that the absorption of freight to meet competition was an unfair method of competition except insofar as freight absorption is a consequence of a method, system, or formula which was declared to be unfair, i.e., the basing point system.

In this order, the use of a specific system of pricing, with the above factors present, when used either through combination or by two or more sellers was found to be an unfair method of competition. In other words, according to some FTC officials, the Court's action reaffirms the contention that basing point pricing can be an unfair method of competition and can be outlawed even if not carried on as part of a conspiracy. But these officials still contend that FTC has never attacked competitive freight absorption per se.

SHOULD the steel industry again begin to absorb freight in order to meet competitive conditions these officials declare that FTC will not necessarily prosecute freight absorption as such nor intervene when freight absorption becomes systematic. If this theory holds up the Commission would only intervene when such practices ap-

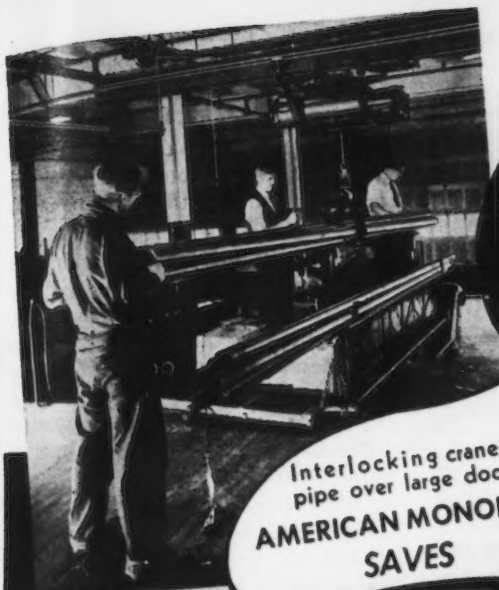
proach a full and complete basing point system or when they tend to lessen competition as defined in the FTC Act.

The Commission staff also believes that further clarification of the legality of delivered pricing practices will come in their treatment of other pending basing point cases such as the current steel case. Lynn C. Paulson, FTC attorney in the steel case, told THE IRON AGE that the rigid conduit decision strengthens the Commission's position because of the existence of similar factors in both the rigid conduit and steel cases.

It will be remembered that the alleged practices which Mr. Paulson is striking at in the steel case are (1) compilation and dissemination of freight rate information, (2) refusal to sell f.o.b. mill when requested, and (3) refusal to set a plant price at every mill.

Meanwhile, there is still a good possibility that Congress may enact legislation dealing with the delivered price problem. Legislation declaring a moratorium until July 1, 1950 on suits brought by the government against individual delivered pricing methods is now before the Senate and House. While such legislation would be little more than an immediate prophylaxis affecting proceedings against individual use of good-faith systems of delivered pricing it would also serve to keep the problem before Congress should the FTC's theory on freight absorption not hold up, thereby requiring legislation of a permanent nature.

Then, too, there is the faint possibility that the Supreme Court might grant a request for a rehearing in the rigid conduit case. While the court seldom grants requests for rehearing, in this instance certain members of the FTC staff might support such a request rather than rely on Commission interpretations and coming rulings to permanently clarify this situation.



Interlocking cranes move
pipe over large dock area.
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SAVES**



Crane on swinging jibs loads
parts from fabrication.
**AMERICAN MONORAIL
SAVES**



Spur track from crane un-
loads coil to storage yard.
**AMERICAN MONORAIL
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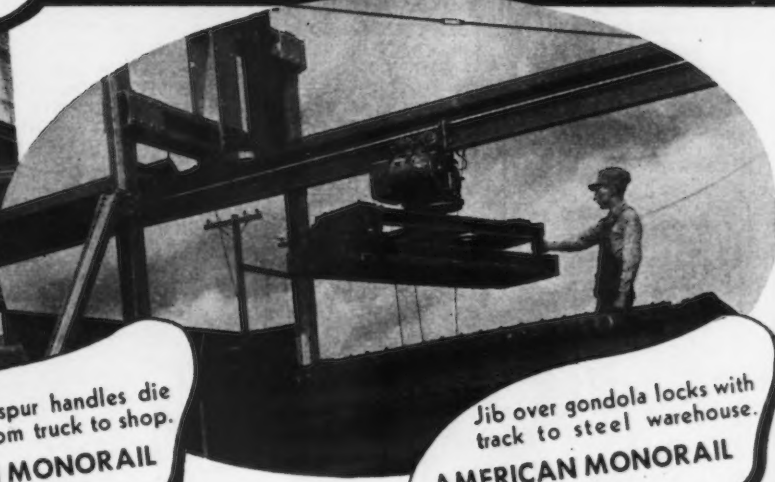
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THE IRON AGE, May 5, 1949—113

Supreme Court Refusal To Review Inland Steel Case Builds Interest

Washington

• • • Supreme Court refusal to review an appeal by Inland Steel Co. from a lower court decision has sharpened interest in future contract negotiations between the United Steel Workers and the steel industry.

The high court's action left in effect a lower court decision upholding a National Labor Relations Board ruling which means that management cannot refuse to bargain collectively with certified unions concerning pension and retirement plans.

This is seen as having wide repercussion. There are approximately 1,000,000 workers in the steel industry who are covered by roughly 1900 separate contracts. It is estimated that about 20 pct or 200,000 workers are covered by some sort of retirement plan.

However, many of these—as in the case of United States Steel Corp., Wheeling Steel Corp., and Jones & Laughlin and others—

have been put into effect on a non-contributory basis. Since industry foots the bill, it naturally feels that it should run the show insofar as pensions are concerned.

This was the basis of the Inland case. Its retirement plan has been in effect since 1945 and officials feel that the lower court ruling throws its program and accumulated funds out the window. For working purposes, the NLRB ruling makes them subject to negotiation.

Action of the courts has undeniably strengthened labor's hand for future discussions on both new and reopened contracts. While USW and CIO officials here are reluctant to make statements until after the policy meeting in Pittsburgh this week, they told THE IRON AGE that they expect to make the most of the ruling.

It is generally believed here that in view of the leveling off of consumer prices, unions may put less pressure on wage demands and shift the emphasis to a drive for more and better benefits.

Hampering the USW's play, however, is the wording of the NLRB ruling which makes such

bargaining mandatory only with "certified" unions. Under the present law, unions cannot be certified until they have complied with the non-Communist affidavit requirement for officials.

This has not yet been done by the steel workers. Some believe that the USW will go ahead with policy-making and preparing for new demands, relying on Congress to either repeal the Taft-Hartley Act or toss out the non-Communist provision in whatever revision may result.

At present, however, it is expected that the Senate will refuse to kill the provision. Instead, it is expected to broaden it to require company officials to sign similar affidavits.

OBE Survey Shows Little Decrease In Dollar Sales Volume

Washington

• • • Despite declining demand for some lines of goods, business generally expects to see but little decrease in dollar volume of sales during 1949 over 1948, according to a survey conducted by the Office of Business Economics.

Moreover, industry and business are making no changes in plans to spend more than \$18 billion this year for plants, stores, equipment, etc. This would represent about 5 pct less than last year's \$19 billion plus.

As a result of continued business expansion, public utilities represents about the only segment of industry expecting increased sales volume. This is estimated at 4 pct over last year.

It is significant, however, that the general optimism is less noticeable among the smaller firms, the OBE says. Where some of the larger concerns expect some increase in business—such as the automotive segment of the manufacturing field—most companies with assets of \$1 million or less expect a decline of sales up to 8 pct.

Manufacturing as a whole expects no more than a 1 pct decrease, mining as much as 3 pct, and trade, 1 pct.

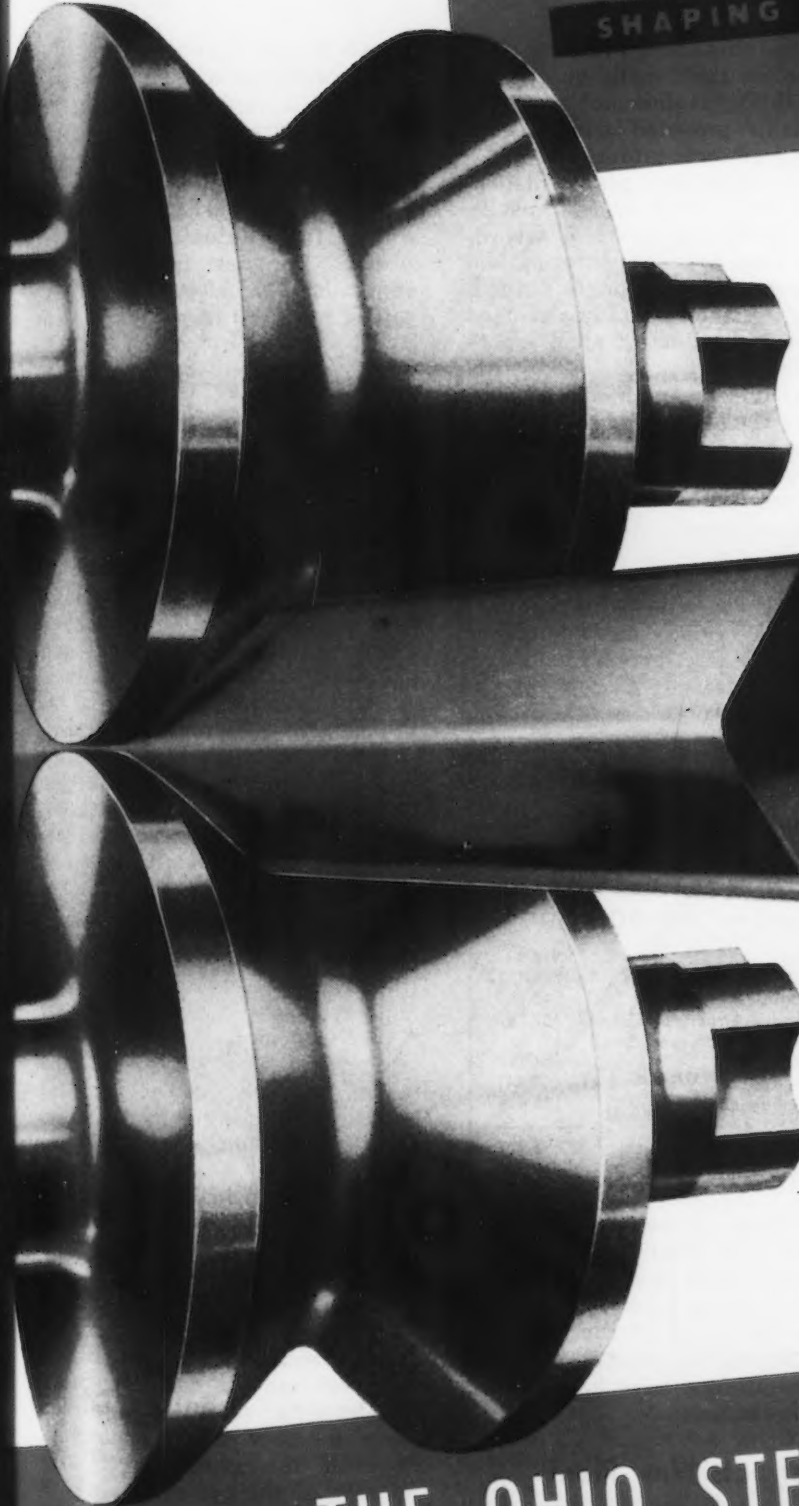
THE BULL OF THE WOODS

BY J. R. WILLIAMS



Ohio Rolls

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**STEEL...
ON THE
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DELAY**

Greater production is the demand today. With Ohio Rolls doing their usual efficient job you can depend on more tonnage between dressings . . . healthier profits.

Select from any of these eleven types of Ohio Steel and Iron Rolls: Carbon Steel Rolls, Ohioy Rolls, Ohioy "K" Rolls, Holl-O-Cast Rolls, Chilled Iron Rolls, Alloy Chilled Iron Rolls, Denso Iron Rolls, Nickel Grain Rolls, Special Iron Rolls, Nioloy Rolls, Flintuff Rolls.

THE OHIO STEEL FOUNDRY CO.

LIMA, OHIO

Plants at Lima and Springfield, O.



- Actual tonnages of rolled products finished in the West presented for the first time as 1948 figures are compiled.



SAN FRANCISCO — Straining rolling mills of four western states last year produced 2,652,917 net tons of rolled products—just about one-half of the estimated total tonnage consumed in the seven western states in 1948.

From reliable sources in seven of the eight companies producing rolled products in the states of California, Oregon, Washington and Utah representing more than 99 pct of the total ingot capacity of the seven western states, THE IRON AGE obtained individual production records from which the accompanying table was produced. These figures are believed to be completely accurate with the only possible error occurring in an estimate of actual production of one plant representing less than 1 pct of the total ingot capacity of the area.

These actual production figures are interesting when compared to the forecast of production of western steel companies as published in THE IRON AGE, Jan. 6, 1949, p. 260. That forecast indicated a total production of finished steel for 1949 of 3,015,000 tons. This would indicate that western mills would have to turn out approximately 362,000 more tons this year than they did in 1948. With the increased facilities of western mills brought into production late last

year and those scheduled for completion in the fourth quarter of 1949, this goal does not seem unattainable provided demand does not fall off precipitously.

These eight steel plants in 1948 had a total rated ingot capacity of 3,667,200 net tons and according to best available information, believed to be completely authentic and reliable, actually produced 3,393,451 net tons of steel ingots in 1948.

It should be pointed out that none of the figures for rolled products and ingots produced includes production in those plants which make steel only for casting, forging or shipment for conversion. There is no duplication of tonnages, but included in the plate production is some universal mill plates. While greater detail of breakdown in some products would be desirable, such tabulation would readily reveal individual company output.

Actual 1948 Finished Steel Production in the Seven Western States, in Net Tons As Developed by THE IRON AGE

Plates	914,497
Sheet, Strip & Tinplate	275,483
Buttwelded Pipe	48,087
Standard Structural Shapes	407,762
Hot-Rolled Bars and Small Shapes	667,799
Wire Rods and Wire Products	199,841
Miscellaneous	139,448
Totaled Rolled Products	2,652,917

This report is believed to be the most accurate and detailed on actual production figures ever made available to the trade in the West, and is the result of the need for such figures by market analysts who heretofore have had to rely on "guesstimates."

Constructs New Plant

Seattle

• • • Construction of the new facilities of the Puget Sound Sheet

Metals Works is under way and it is expected they will be completed by Oct. 1 to replace the plant destroyed by fire last fall.

Of steel construction, the new facilities will include 70,000 sq ft under roof and will be equipped with a fully automatic sprinkler system. The new unit will cost approximately \$400,000 and together with the land and present structures it is estimated that the total investment will approximate \$800,000.

Receives Last Iron Ore

Fontana, Calif.

• • • Last of Vulcan mine iron ore has been delivered to the stockpile here of Kaiser Co. Inc. which is now obtaining its principal supply from the Eagle Mt. mine.

Actual mining operations at the Vulcan mine near Kelso Calif., ended in July, 1947, and since then the Kaiser blast furnace has been operating on stockpile material both at the mine and at the plant and on imported Utah ore.

No. 100 for Ducommun

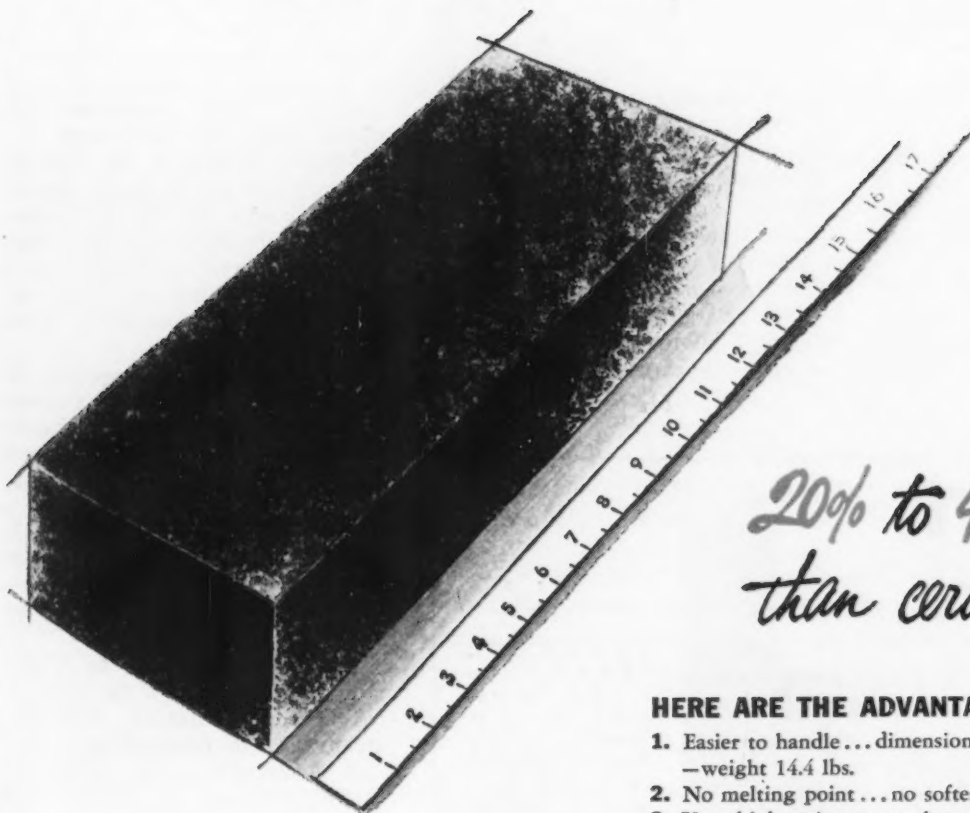
Los Angeles

• • • Ducommun Metals & Supply Co. will observe its 100th anniversary on May 7. The company had its beginning when Charles Louis Ducommun, a Swiss watchmaker, opened a small store on Commercial St. in Los Angeles to repair watches, sell stationery, toys, perfumes and miscellaneous hardware.

Today the company maintains one of the largest stocks of metals of all sizes, kinds and shapes in the West and has complete metal warehousing facilities and employs a corps of 50 salesmen. Four of the grandsons of the founder of the company are still active in its operations. These are: Edmond F., Charles, Alan and Edmond G.

have you tried
"National" Carbon?

a new 13½" Carbon Brick—



20% to 45% lighter
than ceramics!

HERE ARE THE ADVANTAGES:

1. Easier to handle... dimensions: 13½" x 6" x 3"
—weight 14.4 lbs.
2. No melting point... no softening point
3. Very high resistance to slag attack
4. Immune to thermal shock
5. Fewer joints to cement—a faster, sounder job
6. Saves money all along the line

OTHER NEW BRICK SIZES:

- Key brick 13½" x (6"-5") x 3"—weight 13.2 lbs.
Straight brick 9" x 6" x 3"—weight 9.5 lbs.
Key brick 9" x (6"-5¾") x 3"—weight 9.1 lbs.

For more information,
write to National Carbon Co., Inc., Dept. 1A

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Division Sales Offices: Atlanta, Chicago, Dallas,
Kansas City, New York, Pittsburgh, San Francisco
Foreign Department: New York, U. S. A.

These products sold in Canada by
Canadian National Carbon Company, Ltd., Toronto 4.

*Weights in lbs. per cubic foot of carbon vs. ceramic brick: Carbon—96. Firebrick—120-130. Acid-proof brick—148. Chrome brick—175-180.

Increase Centrifugal Cast Pipe Production

Salt Lake City

••• The new \$3,500,000 super DeLavaud process centrifugal pipe unit of the Pacific States Cast Iron Pipe Co. will increase the plant's capacity by approximately four times without any substantial increase in working force according to Harvey King, vice-president and general manager.

The new unit, now in continuous production, replaces an old plant in which the cast iron pipe was made by the pouring method. Its rated capacity is 100,000 tons annually compared to about 25,000 tons for the old unit.

The company will continue to utilize other facilities of its original plant, located a few hundred yards from the Ironton blast furnaces and a few miles from the Geneva plant, for production of cast iron pressure pipe fittings, soil pipe and fittings, valves and fire hydrants. Mr. King reports that present employment is about 375 men and that this will not be changed by operation of the much more efficient new unit.

The new facility produces 18-ft lengths of pipe in sizes from 3 to 24 in. The product is marketed in the Intermountain and Pacific Coast states.

The company, which constructed its original plant here 23 years ago, is a subsidiary of the McWane Cast Iron Pipe Co. of Birmingham. A. T. McWane, president of the parent firm, participated in the formal opening of the new unit last week. He said the expansion in this territory was prompted by operation of the Geneva steel plant, which assures an adequate and continuing supply of pig iron.

The new plant is the only one of its type in the West.

Operates At Capacity

Salt Lake City

••• The recently built steel pipe plant of the Structural Steel & Forge Co. in Salt Lake City is still operating at capacity level (about 50,000 tons annually) on a backlog of orders. Morris Rosenblatt, president, said current orders are slow but that projected oil and gas pipe lines in the area should continue to produce a firm demand.

The local scrap market is so demoralized, according to one user, that there isn't any price.

"No one is buying so no one is selling," he reported. "The price is whatever anyone wants to call it."

Constructs Copper Refinery

Salt Lake City

••• Kennecott Copper Corp. began pouring concrete last week for its new \$16 million copper refinery near Garfield, Utah. The plant, which will employ 800 men, is scheduled to get into production about the middle of 1950.

In connection with the refinery, Kennecott and American Smelting & Refining Co. are jointly building a \$3,500,000 anode casting plant to convert the blister cakes into anodes.

Weapons Development Stressed at Convention

Los Angeles

••• Executives of companies whose factories become arsenals of war during the national crisis, heard of the newest developments in the fields of weapons at a convention of the American Ordnance Assn. here last week.

"What America is doing through the activities of this association and the 100 pct cooperation we are receiving from American industry," said Maj. Gen. Everett S. Hughes, chief of Army ordnance, "is stockpiling industrial knowledge."

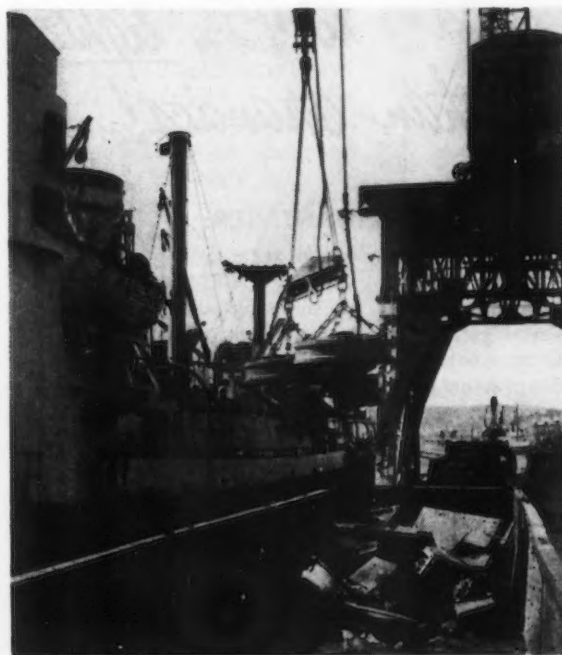
"Congress can appropriate billions of dollars to build weapons and make equipment in the event of war but what Congress cannot do is appropriate a single second of time."

"For that reason," he told the conference, "this country must be ready at the advent of danger to start the production lines at full volume."

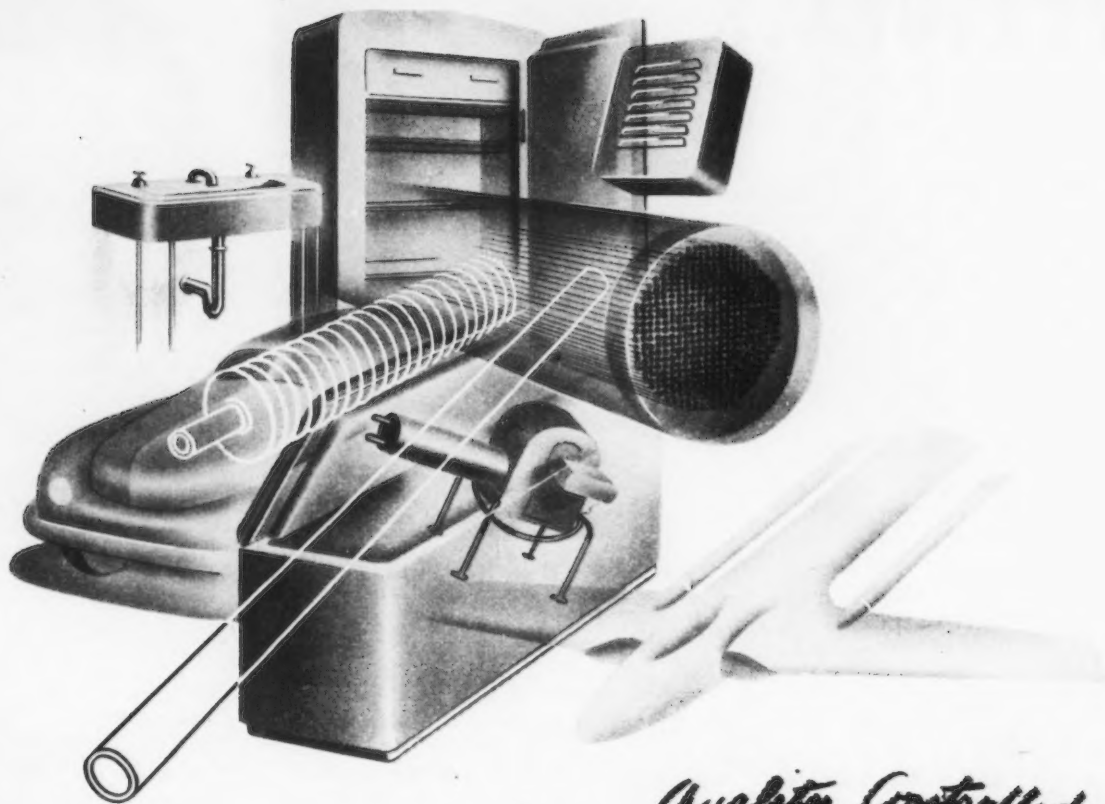
Concurring, James L. Walsh, added, "If America is ready to throw her amazing industrial strength into production of new and powerful weapons, perhaps no other nation or coalition will take the risk of total destruction involved in starting hostilities."

Brig. Gen. William L. Richardson, chief of the Air Forces guided missiles branch, warned that "It is in the development of guided missiles that the danger of falling behind in the technological race lies." Larger test areas are needed, he said.

"Using a 3000-mile missile in a 100-mile range may be likened to knocking out home runs in a living room," he added.



JAPANESE SCRAP: Steel scrap being unloaded for use in Bethlehem Pacific's South San Francisco steelmaking furnaces. Majority of the 9000-ton shipment of scrap from Japan consisted of Japanese industrial scrap, a major portion of which represents wreckage.



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PERSONALS

• • •

• **J. C. Argetsinger** has resigned as secretary of Youngstown Sheet & Tube Co., Youngstown, but continues as vice-president. **J. E. Bennett** replaces Mr. Argetsinger as secretary of the company, continuing also the duties of general counsel. Mr. Bennett had previously served as assistant secretary and general counsel.

• **F. J. Hilsinger** has been appointed works controller of the Midland Works of Crucible Steel Co. of America, Pittsburgh. For the past year Mr. Hilsinger has been connected with the company as works controller at the Spaulding Works, Harrison, N. J. **Alphonse J. Malone** has been named superintendent of the hot strip mill at Midland. He had formerly been with the South Works of Carnegie-Illinois Steel Corp., Chicago.

• **Charles M. Wheeler** has been elected a vice-president of Union Switch & Signal Co., Swissvale, Pa. In his new position, he continues to be in charge of all district offices and sales. Mr. Wheeler joined Union Switch & Signal in 1927 and since early in 1949 served as general sales manager.

• **Nelson R. Church** has been appointed sales representative for the Detroit Die Set Co., Detroit, in New England except Connecticut, where **E. M. Benson** has been named Detroit's representative. **C. W. Keeny** has been appointed representative in New York and northern New Jersey.

• **George B. Moseley** has been appointed supervisor of stamping and contract manufacturing sales at the Firestone Steel Products Co., Akron, Ohio. Mr. Moseley had previously been employed by the Globe Stamping division of the Hupp Corp., where he served as sales manager of the contract manufacturing division.

• **Albert F. Korf** has been appointed sales manager of L.G.S. Spring Clutch Corp., Indianapolis, a division of Curtiss-Wright Corp.



CLARENCE B. RANDALL (left), president, and ANTHONY M. RYERSON (right), director, Inland Steel Co.

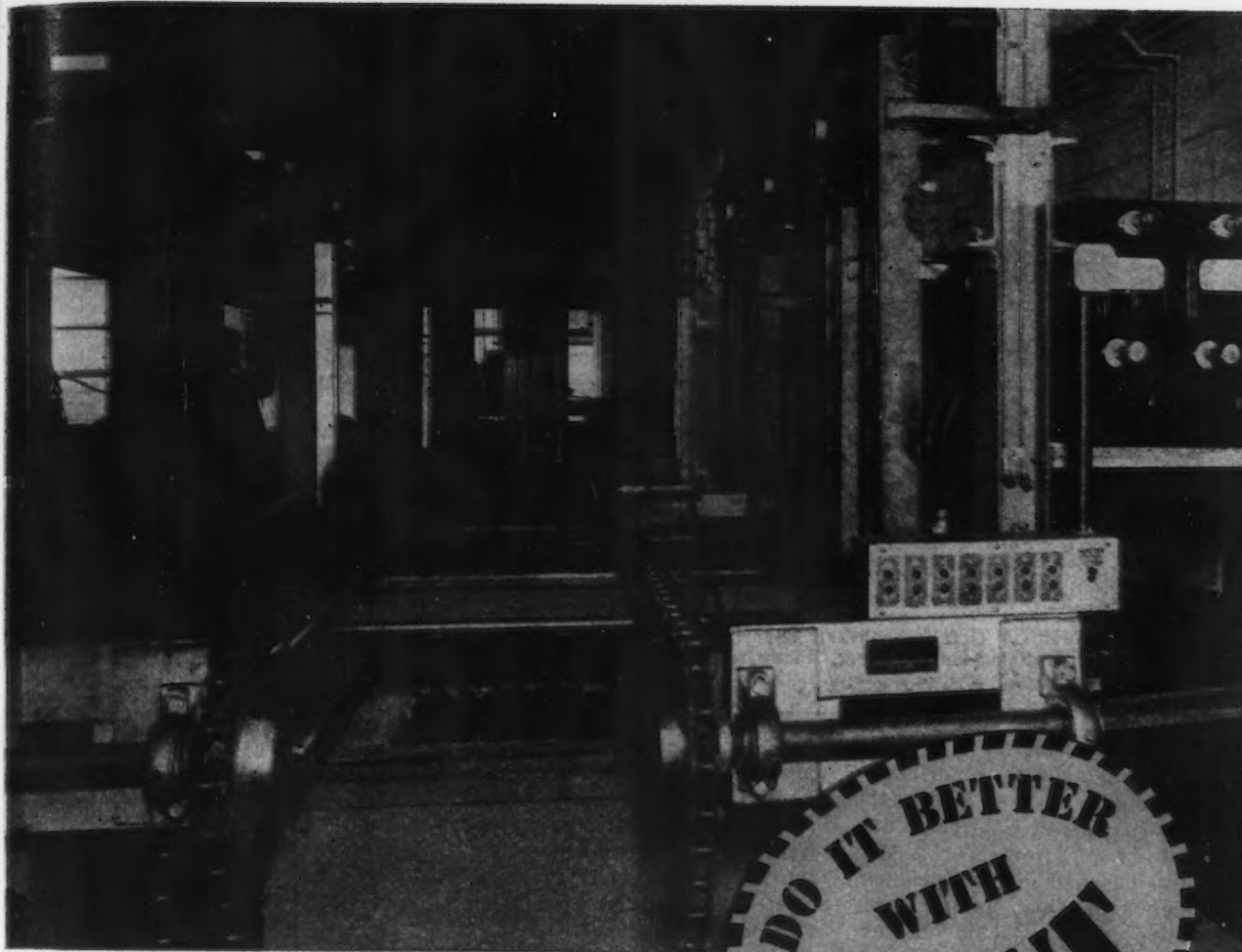
• **Clarence B. Randall** has been named president of Inland Steel Co., Chicago, succeeding **Wilfred Sykes**, who has been elected chairman of the executive committee. Mr. Randall's elevation to the presidency has been expected for some time (see THE IRON AGE, Feb. 10, 1949). **Joseph L. Block** has been elected vice-chairman of the board and continues in his present position as vice-president in charge of sales. **Edward E. Brown** and **Anthony M. Ryerson**, the latter assistant to the manager of sales, sheet and strip division of Inland, were elected new directors.

• **R. E. Whittenberg** has been appointed superintendent of the Birmingham works of Harbison-Walker Refractories Co., Pittsburgh, succeeding **S. A. Cattlett**, who has been named district superintendent of the Olive Hill, Ky., and the Portsmouth, Ohio, plants. Mr. Whittenberg has been with the company since 1935 when he was named assistant superintendent at Birmingham. **D. L. Kuhner**, superintendent of the Portsmouth, Ohio, works, has been appointed superintendent at Olive Hill. **R. H. Cook** has been named to succeed Mr. Kuhner as superintendent at Portsmouth. Mr. Kuhner has been with Harbison-Walker more than 25 years. Mr. Cook has been with the company since 1920. **John H. Moore**, superintendent of Louthan Mfg. Co., a

division of Harbison-Walker at East Liverpool, Ohio, has joined the Pittsburgh office of Harbison-Walker as assistant divisional superintendent. **L. F. Sixt**, formerly plant manager for New Castle Refractories Co., New Castle, Pa., has been named to succeed Mr. Moore as superintendent of Louthan. Mr. Moore joined the operating department of H-W in 1933. Mr. Sixt has been with New Castle since 1934.

• **Frank B. Moran** has been appointed superintendent of industrial relations of the Etna, Pa., plant of Spang-Chalfant division of National Supply Co., Pittsburgh. **A. D. Cadenhead** has been appointed supervisor of the newly-formed community relations department.

• **W. P. Berg** and **L. A. Mertz** have been elected directors of Union Barge Line Corp., a subsidiary of Dravo Corp., Pittsburgh. Mr. Berg, a vice-president and director of Dravo, is general manager of the machinery division. He has been with that firm since 1923. Mr. Mertz is a director, vice-president and treasurer of Dravo and holds executive offices in several other subsidiaries of the firm, with which he has been connected since 1917. **L. M. Baker**, auditor of Union Barge, has been appointed assistant secretary and assistant treasurer of the line and of Southern Transfer Co., Memphis.



DO IT BETTER
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See how salt baths may be mechanized to handle mass production of similar types of parts. Four furnaces are connected by chain conveyors, taking cylinder liners vertically through pre-heat, high heat (1475-1550°), quench (400-500°), stress relief, wash and rinse. One operator loads and unloads work. Distortion is eliminated; hardness is uniform throughout. Remember, salt baths are flexible, non-scaling, non-oxidizing. Depend on Houghton salts and Houghton personalized service. For catalog, write E. F. Houghton & Co., Philadelphia 33, Pa.

HOUGHTON'S
Liquid **SALT BATHS**



DUNCAN S. CAMERON (left), openhearth superintendent, and **CARL J. MURRAY** (right), Buffalo plant manager, Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp.

• **Duncan S. Cameron** has been appointed openhearth superintendent, Wickwire Spencer Steel division, Buffalo plant, Colorado Fuel & Iron Corp., New York. Mr. Cameron has had long experience in openhearth work, having been associated with Pacific States Steel Co., the Kaiser Co. and Republic Steel Co. **Carl J. Murray** has been named plant manager at the Buffalo Works. Mr. Murray had previously been connected with the Jessop Steel Co. as general superintendent and had previously been plant engineer with Crucible Steel Co. of America.

• **Keen Johnson** has been elected a director of the Reynolds Metals Co., Richmond, Va. Mr. Johnson is vice-president and director of public relations of the company.

• **Carl P. Finney** has been elected president of Pequot Wire Cloth Co., Inc., South Norwalk, Conn.

• **B. E. Hiles** has been appointed sales manager of the hotel and industrial division of the Aluminum Cooking Utensil Co., Pittsburgh, succeeding **George Peters**, who retires effective Sept. 1. **J. L. Ogden** has been appointed to succeed Mr. Hiles as Chicago manager. **W. F. Marshall** has been named to succeed Mr. Ogden as Pittsburgh district manager. Mr. Marshall has served as Wear-Ever supervisor in San Francisco since 1927.

• **H. Y. Walker** has retired as president of American Smelting & Refining Co., New York, after 52 years of service with the company. **Kenneth C. Brownell**, formerly executive vice-president, has been elected president. **John C. Emison**, vice-president, has been elected chairman of the finance committee. **J. D. MacKenzie** has been elected vice-president and a member of the board of directors. **Simon D. Strauss** and **O. W. Tuckwood** have been elected vice-presidents. **Oscar S. Straus** has been named treasurer.

• **Robert L. Baldwin** has been appointed assistant to the western district manager for Hardinge Co., Inc., York, Pa. Mr. Baldwin has his headquarters in the San Francisco office of the company.

• **W. G. Arnold** has been appointed works manager of the Fitchburg, Mass., works of General Electric Co. Mr. Arnold also continues in his present capacity as manager of manufacturing for the two GE divisions, turbine and welding. **Frank C. Neal, Jr.**, has been appointed manager of the distributor sales division of GE's welding divisions, with headquarters in Fitchburg. Mr. Neal has been connected with the company since 1936. He is succeeded as manager of the Houston welding division by **Preston D. Morgan**.

• **Gaylord L. Jones, Jr.**, has been appointed sales representative in the southeastern area for the Brush Div., The Osborn Mfg. Co., Cleveland, succeeding his father, who died recently.

• **Eric G. Skarin** has been appointed service metallurgist for Ohio Ferro-Alloys Corp., Canton, Ohio. He had previously been associated with Bethlehem Steel Co. and Midvale Co.

• **Henry J. Leisenheimer** has been appointed manager of export sales, Electric Products Co., Cleveland. He had formerly directed export activities for Cleveland Tractor Co. and more recently had been associated with Hydraulic Press Mfg. Co.

• **Franklin Lawrence**, president of the Portland Stove Foundry, Portland, Me., has been made a director of the Bates Mfg. Co., Augusta, Me.

• **John D. Eddy** has been appointed vice-president and sales manager, Dow & Co., Inc., Buffalo.

• **F. W. Bremmer** has been appointed vice-president in charge of manufacturing, National Supply Co., Pittsburgh, succeeding **Charles R. Barton**, who has retired. Mr. Bremmer had formerly been works manager of the Ambridge plant of the Spang-Chalfant division.

F. W. BREMMER, vice-president in charge of manufacturing, National Supply Co.



PERSONALS

• **P. L. Francis**, formerly general sales manager, has been elected vice-president in charge of sales, Alan Wood Steel Co., Conshohocken, Pa.

• **Charles O. Karsen** has been appointed president of Locknut Corp. of America, Chicago. Mr. Karsen had previously served as vice-president in charge of sales. **Edwin H. Johnson**, formerly president of the company, continues as chairman of the board. **J. F. McRoberts** has been named vice-president in charge of sales. **S. L. Blomgren**, secretary-treasurer; **M. E. Leonard**, assistant secretary and **Barth Nelson**, assistant treasurer.

• **Wade A. Eskridge**, formerly assistant district manager of oilfield territory at Tulsa, Okla., has been appointed service manager of Twin Disc Clutch Co., Racine, Wis. Mr. Eskridge has been with Twin Disc since 1947.

• **J. H. Tredinnick** has been appointed vice-president of E. W. Bliss Co., Toledo. Mr. Tredinnick, who is manager of Bliss' Hastings, Mich., plant, joined the company in 1935 to take charge of this plant. He had formerly been associated with the Lanston Monotype Machine Co. and the V. & O. Press Co.

J. H. TREDINNICK, vice-president, E. W. Bliss Co.



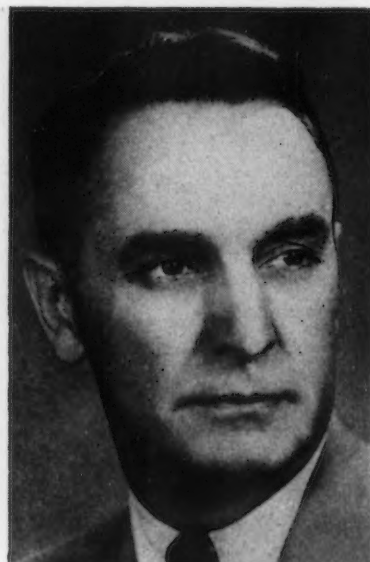
GEORGE B. BEITZEL (left), president, and **WILLIAM F. MITCHELL** (right), vice-president in charge of manufacturing, Pennsylvania Salt Mfg. Co.

• **George B. Beitzel** has been elected president of Pennsylvania Salt Mfg. Co., Philadelphia, succeeding **Leonard T. Beale**, who has served as president for the last 20 years, and who now continues as chairman of the board. Mr. Beitzel, who had previously served as executive vice-president, joined the company 19 years ago. **William F. Mitchell** has been elected vice-president in charge of manufacturing. Formerly assistant vice-president, manufacturing, Mr. Mitchell succeeds **Y. F. Hardcastle**, who has retired, but remains a member of the board. **William P. Drake** has been elected vice-president in charge of sales. Mr. Drake, formerly assistant vice-president, sales, assumes the position left vacant when Mr. Beitzel became executive vice-president. Mr. Beitzel and **Fred C. Shanaman**, president of Pennsylvania Salt Mfg. Co. of Washington, a West Coast subsidiary, were elected directors.

• **Walter P. Carroll**, a director of the company and manager of the metal department and the Chicago branch of National Lead Co., New York, has been elected a vice-president. Mr. Carroll joined the company in 1910 as an assistant to the manager of white lead sales of the Chicago branch. **C. F. Garesche** has been named chairman of the newly-formed research control committee of the company.

He continues as a vice-president, director and a member of the executive committee. **D. W. Robertson** has been appointed general manager of the titanium division, succeeding Mr. Garesche in that position. **Joseph H. Reid** has been appointed division manager. Mr. Robertson joined the company in 1926 in a sales capacity for Titanium Pigment Co., Inc. Mr. Reid joined the company in 1927 at the St. Louis Smelting & Refining Co. In 1947 he became assistant manager of the titanium division of the company and serves as a director of the Titanium Pigment Corp. **Gloyd M. Wiles** has been appointed manager of the St. Louis Smelting & Refining division of National Lead, succeeding **Jean McCallum**, who has retired. Mr. Wiles has been with the company since 1942. Mr. Wiles continues as chairman of the company's mining committee. Mr. McCallum joined the company in 1918. **Allen R. Reiser** has been named assistant manager of the division. **Harold A. Krueger** has been named plant manager of the Tri-State operations of the division. **A. J. Yahn** has been appointed plant manager of the division's Fredericktown operation.

• **W. A. Roberts** has been elected to the board of directors of Pittsburgh Steel Co., Pittsburgh, succeeding **Harold F. Reindel**, who has resigned.



JOHN P. FEAGLEY (left), and **PHILIP G. BOYD** (right), district sales managers, Youngstown Sheet & Tube Co.

• **John P. Feagley** has been appointed district sales manager in charge of the New York office, Youngstown Sheet & Tube Co., succeeding Lew E. Wallace, who has been transferred to Youngstown as general manager of sales. Mr. Feagley has spent 17 years with the company in the New York office, joining as a salesman. In 1945 he became assistant district sales manager and held that post until his recent appointment. **Philip G. Boyd** has been appointed Chicago district sales manager, succeeding Arthur Purnell, who died. Mr. Boyd joined Youngstown Sheet & Tube in Detroit in 1929. Since then he has served in various sales capacities in Toledo, Philadelphia, Washington and Chicago, where he had been assistant district sales manager.

• **Ted Gravenston** has been appointed sales promotion manager by the Burndy Engineering Co., Inc., New York. Mr. Gravenston has wide advertising experience and prior to joining Burndy had been associated with the Mayers Co., Los Angeles.

• **Carter B. Hart**, formerly sales representative in the Boston district office, has been named New England region dealer supervisor for Allis-Chalmers, Milwaukee. Mr. Hart has been associated with Allis-Chalmers since 1945 specializing in electronics in the Boston office.

• **Dudley W. Figgis**, who has been president of the American Can Co., Jersey City, N. J., since 1943, has been named chairman of the board, following the retirement of **Maurice J. Sullivan**, who continues as a director and a member of the company's executive committee. **Carl H. Black**, formerly executive vice-president, has been named to succeed Mr. Figgis as president. **William C. Stolk**, previously vice-president in charge of sales, has been elected executive vice-president, succeeding Mr. Black. Mr. Figgis started as a clerk in a district sales office in 1902. Mr. Black has been with American Can since 1908, starting as a machine operator in one of the plants. Mr. Stolk joined the company in 1916 as a timekeeper.

• **C. S. Quillen** has joined the sales engineering staff of Nordstrom Valve division, Rockwell Mfg. Co., Pittsburgh. Mr. Quillen handles sales in the metropolitan area of New York.

• **Frank M. Re Pass, Jr.**, has been engaged in the capacity of development engineer for Consolidated Safety & Relief Valves for Manning, Maxwell & Moore, Inc., at the Bridgeport, Conn., plant. Mr. Re Pass had previously been connected with Crosby Steam Gauge & Valve Co. and recently served as assistant sales manager of the J. E. Lonergan Co.

• **Alex M. Sneddon** has been appointed to represent the Denison Engineering Co., Columbus, on the sale of Multipress and other hydraulic press equipment in New York.

• **William H. Graves**, formerly executive engineer, Packard Motor Car Co., Detroit, has been promoted to vice-president and director of engineering. Mr. Graves joined Packard as a research chemist in 1919.

• **H. C. Musser** has been appointed production manager of McBee Co., Athens, Ohio. Mr. Musser has served 25 years with the company.

• **Renato Bobone** has joined the physics department and **Gerard T. Carter** the ceramics department of Horizons, Inc., at Cleveland. **Neil D. Wilson**, **Frank J. Swartz**, **Ellis R. Mace**, **Donald F. Gollwitzer** and **Charles E. Kelley** have been appointed to Horizon's laboratory staff.

(CONTINUED ON PAGE 181)

OBITUARY...

• **John Wilson**, 69, retired president, National Steel Construction Co., died Apr. 12 in Seattle.

• **James W. Gosselin**, 27, production manager, East Chicago plant, Graver Tank & Mfg. Co., Inc., East Chicago, Ind., died Mar. 27.

• **Edward J. Camb**, 38, weighmaster at the Lackawanna, N. Y., plant, Bethlehem Steel Co., Inc., Bethlehem, Pa., died Apr. 17.

• **Edward D. Clark**, 73, general foreman of the casting department, Raritan Copper Works, Raritan, N. J., died Apr. 20. He had been employed by Raritan Copper 50 years.

• **Charles O. Hultquist**, 64, toolmaker, Excel Tool & Die Co., Rahway, N. J., died Apr. 21.

• **Sidney M. Bernheim**, president and owner, Fabricating & Machinery Inc., Birmingham, died Apr. 24.

• **William P. Brown**, 52, retired president, Briggs Mfg. Co., Detroit, died Apr. 25.

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Kathy Lynn and Theodore Balash, as painted from photographs



She has a big stake in steel

Year-old Kathy Lynn of 3941 Kleber Street, Pittsburgh, Pa., is the daughter of

Theodore Balash, successful plumber and a good customer of steel. More steel has helped his business

double since V-J Day. The better his business, the brighter Kathy Lynn's future.

Not so long ago, plumbing fixtures were in short supply. Balash had one problem after another in meeting customers' needs. But today he and the two apprentices working for him are having it a lot easier. With record steel production, post-war shortages of fixtures and all other steel products are disappearing.

Kathy Lynn's stake in steel will

increase with the years. When she has grown to earning and spending age, she will find life even pleasanter with things made possible by plenty of this basic metal.

To insure sufficient supplies for all the people, steel companies are spending two billion dollars in a continuing expansion program. Meanwhile, all records of production of finished steel

are being broken. Last year with less than 7 percent of the world's population, Americans had 53 percent of the world's steel output.

Steel is a far-seeing, fast-moving industry. It will continue to provide increasing quantities of steel to everybody, from the small businessman like Theodore Balash to the largest user.

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AMERICAN IRON AND STEEL INSTITUTE • 350 Fifth Avenue, New York 1, N. Y.

European Letter . . .

• Dollar not on gold standard, but gold on dollar standard . . . Time for European currencies to find own level . . . Primary responsibility in London . . . U. S. reaction important factor in adjustment.



LONDON — There is a steadily mounting volume of discussion throughout the world of what is somewhat euphemistically referred to as an adjustment of currencies but what it would be more honest to call the devaluation of all the world's soft currencies. All over Europe it is a general topic of speculation in one, if not in the other, meaning of the word. In America the broadest hints are being dropped by authorities as high as the Secretary of the Treasury and the Economic Cooperation Administrator that the time has now come for the European currencies to find their own level. It is only in England that the subject of currency adjustment is still not considered to be of much more than academic interest which might seem to be strange, for, though nobody is so impolite as to say so in so many words, adjustment of currencies means, first and foremost devaluation of sterling. Without some action in respect of sterling there will be no general readjustment; but if sterling were to move the great majority of the world's currencies would move also. The primary responsibility in the matter thus rests in London. That may partly explain the *sotto voce* nature of such discussion of the subject as can be heard in this country, for

there is a great reluctance to say or write anything that might undermine confidence in the nation's currency. Even now, when it is becoming increasingly pedantic to keep silence on a subject that the whole world is discussing, there is a danger lest anything that is written in London may be interpreted as meaning that a change in the exchange value of sterling is imminent.

So far from this being the case, there is every reason to suppose that the British authorities — the Bank of England and more particularly the Treasury — are still as firmly opposed to any proposal of the sort as ever they were. This is not merely a calculation of expediency; it also reflects the prevailing trend of thought on general principles. The governing philosophy, not merely of the politicians of the Labor Party, but also to a very large extent of the civil servants whose advice so frequently shapes policy, is at present wholly opposed to anything that smacks of monetary manipulation. It is strange that, when current economic thought is so strongly Keynesian in many other respects, it should be so wholly opposed to Lord Keynes's views in this one matter. The lesson of wartime economics, when monetary policies so frequently have to give way to physical compulsions, was in the end so well learned that it cannot now be unlearned, the more so since there is a variety of socialist idealism that

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rejects anything that smells of the market-place. Whatever the psychological roots, there is no doubt that the tendency of the moment is to try to stabilize all the sensitive indicators of the free-market economy such as prices, wages, the rate of interest and the rate of exchange and to make such adjustments as are necessary by the infinitely harder physical methods of allocations of materials, direction of labor, control of investment, bilateral trade bargains and the like. Those who think that the British government have a plan for the de-

valuation of sterling all cut and dried, and are only waiting for the right moment to spring it on the world, do not know their Cripps.

BUT this still leaves it open to inquire whether the government ought to be formulating a plan. Would a reduction in the exchange value of the pound sterling be of advantage to the United Kingdom and to the sterling area? Would it help the trade of the world as a whole along the road back to prosperity?

The general long term argument in favor of an adjustment of currencies is a perfectly simple one. The United States dollar, together with a very small number of other currencies, is universally scarce. Most of the other currencies of the world are in surfeit *vis-à-vis* the dollar. Moreover, though both the scarcity and the surfeits may become less intense, there seems to be very little prospect, as things stand at present, of their disappearing. The best that the British long term plan can promise is that it may be just possible, in three years' time, to earn as many dollars as are spent, but only by dint of the most vigorous economy in buying and the most intensive pressure in selling. The natural reaction of a free market to such a relationship — one article permanently scarce in terms of virtually all others — would be to put up the price of the scarce article. Such a movement of price must have some tendency to choke off the demand for the scarce article and to encourage the demand for those that are freely offered. Indeed, there must be *some* rate of exchange at which the demand for dollars and the supply of them would freely balance, even without exchange control, and though to seek this equilibrium rate might involve a larger shift in exchange rates than was politically supportable, a movement in its direction could hardly fail to be of assistance in reducing the remaining gap between demand and supply that has to be covered by the expedients of governments.

This is the argument, and as a general proposition, with no time-

KEOKUK-WENATCHEE NOW ONE!

THE TOWN PRATTler COLUMN
by Chief Running-at-the-Mouth



Chief Keokuk, the Indian Country's most eligible bachelor, has at last captured the heart and hand of the Redmen's favorite pin-up princess, the Wenatchee herself. Keokuk, mighty hunter, fearsome warrior, utterer of great metalurgical truths and his charming bride are shown in the informal candid photograph above. The couple is even now off on a honeymoon trip by covered wagon. The Chief claims his bride can average a five-mile-an-hour speed at the yoke if her new moccasins don't pinch her feet.



Chittum-Chattum on Keokuk Wenatchee Wedding:

While the Big Chief and his lovely Princess were double-trailing it, the Keokuk Electro-Metals Company of Keokuk, Iowa, proudly established a new plant at Wenatchee, Washington. Wigwam news sources, known to be reliable, tell your copperskinned correspondent that the new division plant will begin at once manufacture of the famous ELECTRO-SILVER pigs and piglets there in the heart of the Northwest's power-rich Inland Empire.



A late news flash on our private tom-tom ticker confirms the good word that these new facilities will practically double Keokuk's electro-silvery output and will permit stockpiling for improved shipping services throughout the West and Midwest.



Wenatchee, which the paleface translates as "Foot of the Rainbow," will now shoot out those silvery pigs and piglets from the shores of the Columbia River apple country while the Keokuk plant at the other end of the rainbow will continue shooting out an expanding silvery stream into the midwest and south. On-the way to their ermine-trimmed nuptial wigwam the bridal couple was overheard to remark (and this is exclusive), "Heap big pile of pigs! Ugh!" (For paleface readers "Ugh" is translated "WOW!")



60-lb. pigs for steel plants

30-lb. pigs and 12 1/2-lb. piglets for foundries.

KEOKUK

BY KEOKUK ELECTRO-METALS COMPANY
electro-silvery
KEOKUK, IOWA

WENATCHEE DIVISION, WENATCHEE, WASHINGTON

SALES AGENTS: MILLER AND COMPANY, 332 S. Michigan Avenue, Chicago 4, Illinois.
Cincinnati 2, Ohio, 3504 Carew Tower - St. Louis 1, Mo., 407 N. Eighth St.

table attached, it is very difficult to dissent from it. Whatever, within the bounds of reason, may happen to relative prices in the United States and Europe, it seems overwhelmingly probable that the dollar will continue to be scarce. Whatever the price calculations may show, this means that the dollar, at the present exchange rates, is, and will continue to be, undervalued. Some time or other, it will have to be allowed to rise. This is, as will be seen, an argument for the appreciation of the dollar, not for the depreciation of sterling, and it might seem that the direct way to meet it would be to raise the gold content of the dollar. But that would cause practical difficulties both in the United States itself, where funds would have to be found to write down the dollar value of American gold holdings, and also in South Africa, where the gold mining industry is already none too prosperous with gold at \$35 an ounce. It would be far better to face the plain fact, which is that the dollar is not on the gold standard, it is gold that is on the dollar standard. The practical way to appreciate the dollar is not to raise its gold content, all other currencies keeping their present gold parities, it is for all, or most, other currencies to lower their parities in terms both of the dollar and of gold. And that is in fact what would happen, for if the United Kingdom were to apply to the International Monetary Fund for permission to reduce the gold parity of the pound sterling, most of the countries of the world outside the dollar bloc would follow suit within 48 hours.

At some time in the future, this is very likely to happen — an appreciation of the dollar taking the formal shape of a depreciation of all other currencies. The difficult question to foresee is when it will happen — when it should happen — and there is no reason why it should not be dispassionately argued as a matter of international monetary technique, not as a threat to national prides and integrities.

Whenever the question has come up, as it has at intervals since the end of the war, the British authorities have always taken the line that to reduce the value of sterling in the conditions that prevailed from 1945 to 1948 would do this country

and the sterling area great harm. In this they have certainly been right. In a seller's market, a fall in the buyer's currency would not affect world prices in the slightest degree; the only effect of a fall of, say 20 pct, in sterling would have been to put up the sterling prices of imported goods by the same proportion and to face the government with the dilemma of either increasing subsidies to a corresponding extent or letting wages rise. And so long as the volume of British exports depended on the supplies that could be made available and hardly at all on the prices that were asked for them as was broadly true until quite recently, a fall in the pound sterling would not increase British earnings of dollars.

But these conditions are now changing. More and more complaints are to be heard from North America and of the high price of British goods. A fall in sterling that was accompanied by a similar fall in all other nondollar currencies would not, of course, assist exports to any other than dollar markets. Even there, there would be no net gain unless the volume of sales rose by more than the price fell. But this may well be true in the American market, where the British or European proportion of the total sale is, for almost every commodity, quite tiny and could be doubled or trebled without becoming large. American elasticity of demand for European goods may be very large.

On the import side also, conditions are changing. It is no longer completely a seller's market. It would be foolish, of course, to expect the return of a complete buyer's market such as that of 1931, when a fall of sterling led to a broadly equal fall in world market prices. But conditions are beginning to return in which a substantial drop in the buyer's bid (for that is what a depreciation of the buying currencies amounts to) can be expected to have some effect on the world price. For the first time, therefore, it is becoming possible to argue that a depreciation of sterling might lead to the earning of more dollars and to a reduction in the number of dollars needed.

But it would need a great deal of hardihood to hold that it is yet a strong argument, even if the freedom of world markets were not obstructed by all manner of con-

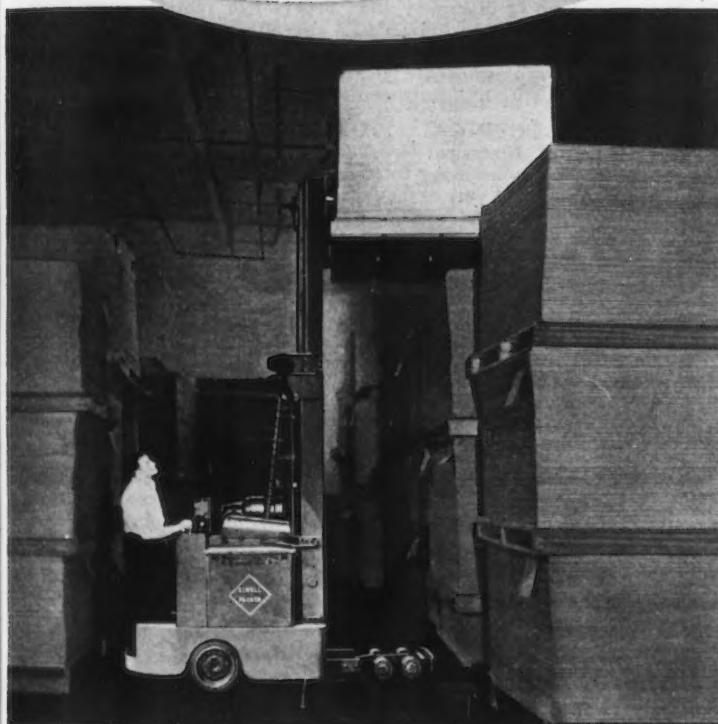
trols and, incidentally, by long term contracts of supply. From the economic point of view, the balance of argument would still seem to be firmly on the side of delay. There may be a strong economic argument for devaluation in 1950 or 1951; there is only an embryonic one today.

There is, however, a political argument on the other side. Whether a devaluation of European currencies turned out for the better or for the worse would depend almost entirely on what the reaction was to it in the United States. If the dollar were artificially forced down in the wake of sterling, as happened in 1933, or if Congress were led, by complaints of a flood of European imports, to restore the tariff to its Smoot-Hawley eminence, then all would be in vain. At present, the U. S. Administration and informed opinion in America are not merely prepared to accept European devaluation, they are actively urging it. But if the next 12 months see a development of the recession in American business conditions that is already visible, and American businessmen become the reverse of complacent about difficulties put in the way of their exports or increasing competition from imports, the American reaction to devaluation might be very different. Political and economic considerations, in fact, point in opposite directions, as they often do. The task of statesmanship will be to find the right balance between them.

There are some signs that currency adjustments will become the fashionable fad of 1949, the *deus ex machina* that is to solve all economic problems, as capital investment plans were two years ago and disinflation was last year. But depreciation of currencies, whether good or bad, is certainly no panacea, and if too great expectations are put upon it, it will prove to be a broken reed. And that would be a pity, for it may well be that, with the turn of the economic tide, enough elasticity is returning to the world economy to restore some of their former efficacy to the familiar weapons of monetary policy. There are no panaceas; but there should be no inhibitions against the use of any instrument that is likely to help the world back to sanity and stability.

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• **IN AND OUT**—No. 7 blast furnace of the Tennessee Coal, Iron & Railroad Co. at Fairfield Steel Works has been returned to blast after being relined and enlarged. Furnace had been out of blast since Feb. 19. Meanwhile, Republic Steel Corp. shut down No. 1 blast furnace at Thomas Works, Birmingham, Apr. 30. A company spokesman said the furnace was shut down for lack of merchant iron orders. Republic's No. 5 blast furnace at Youngstown was taken out of production last week for relining.

• **TINPLATE**—Tinplate production is at capacity and most mills are booked solid through June. Trouble is that buyers are still shying away from third quarter commitments. Many are even refusing to talk about July. Whether this is due to less future demand or to inventory correction is still a question in the minds of tinplate salesmen. Probably it's a bit of each. Many tinplate buyers who once clamored for quarterly or yearly commitments from steel companies are now cutting lead time (time between order and shipment) to a bare minimum.

• **PRICE LINEUP**—Jones & Laughlin announced a \$4 a ton reduction in plate prices, effective May 1, to \$3.40 per 100 lb, the price quoted by all major midwestern mills. On the same day its hot and cold-rolled sheet and strip extras were also reduced to competitive levels. Following the initial cut by National Steel, Bethlehem had taken similar action on sheet and strip.

• **STEEL LABOR**—As the Steelworkers wage policy committee met in Pittsburgh this week to frame 1949 contract demands the May issue of its publication, "Steel Labor" declared the USWA ready to see through to a finish its fight for social insurance and pensions in the steel industry.

• **SHEET EXTRAS**—Bethlehem Steel Co. has reduced extras on hot-rolled and cold-rolled sheets effective Apr. 27. In effect this action returns sheet extras to the previous schedule and represents an estimated saving to the consumer of about \$7.00 a ton on hot-rolled pickled sheets.

• **PURCHASE**—Koppers Co., Inc., has contracted to purchase Freyn Engineering Co., Chicago, which specializes in engineering and construction of steelmaking equipment. Acquisition will also include the Open Hearth Combustion Co., a Freyn subsidiary.

• **PIPE DOWN**—United States Pipe & Foundry has reduced its general selling prices on cast iron pipe and fittings \$4 per net ton, effective May 1.

• **RETRENCHMENT**—Curtailed of alloy steelmaking operations by Republic Steel Corp. continued last week when an additional furnace was taken out of production at Massillon, Ohio, leaving three of nine alloy openhearth operating. At Canton, Ohio, Republic is operating 3 of 5 alloy openhearth and 10 of 17 electric furnaces. In Chicago, two electric furnaces have been taken out of production. Decline in demand for alloy and conversion ingots is responsible for the curtailment which began about 6 weeks ago.

• **SNAFU**—Army procurement did an abrupt about face on the 60,000 net tons of pig iron they are buying for Japan. After reporting all bids had been rejected and new bids were to be taken not later than May 2, they decided to award contract to the lowest bidder. The award was given to Far Eastern Metal Trade Co., San Francisco. Iron will be furnished by Austrian Iron & Steel Co., Linz, Austria, at price of \$55.75 c and f, Yokahama, Japan.

• **DEMAND OFF**—A. F. Franz, executive vice-president, Wickwire Spencer Div., Colorado Fuel & Iron Corp., said a drop in incoming steel orders had reduced operations in the division to between 75 and 80 pct of capacity. He looks for a high rate once inventory adjustment problems felt by most industries are cleared away. Production in the division's wire mill has been reduced to a 4-day week.

• **ELECTRICAL WORKERS**—Within a month the United Electrical Workers, CIO, will file demands for increases amounting to \$500 per year per employee. The overall demand will cover "wages and salaries, pension improvements and other economic benefits."

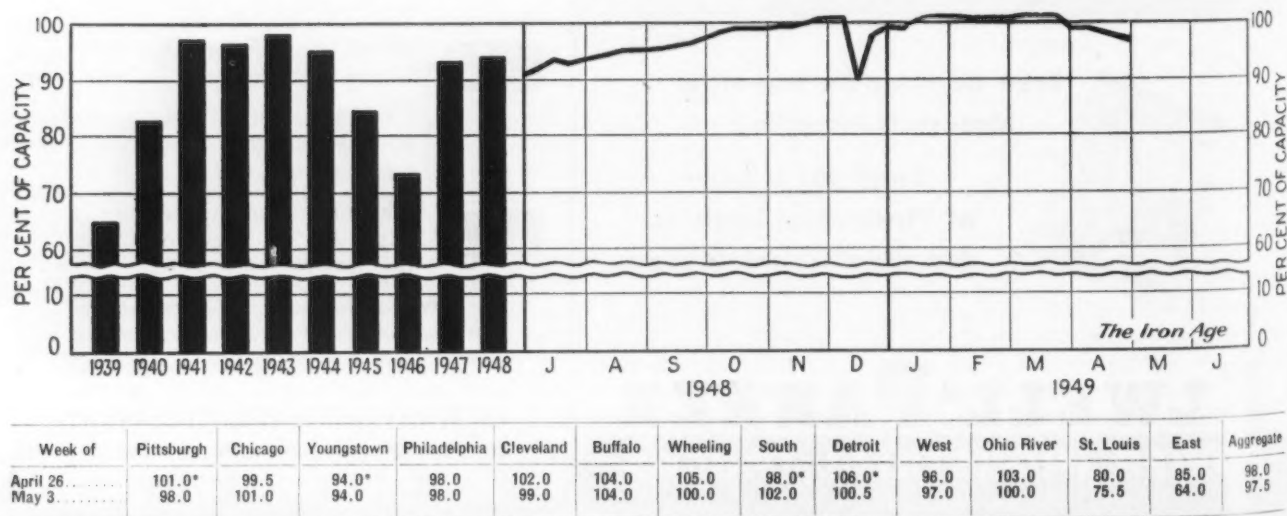
• **DOWN**—Tonawanda Iron Div. blast furnace of American Radiator & Standard Sanitary Corp. was shut down May 2 for a thorough rehabilitation. Plans call for completion of the work about July 1. Furnace is rated at 450 tons per day.

• **STEEL EXTRAS**—Revising extras was perhaps a bigger job for U. S. Steel Corp. than at first thought. It may be several weeks before the entire revisions are announced to the trade.

• **IRON DOWN**—Woodward Iron Co. and Sloss-Sheffield Steel & Iron Co. have reduced pig iron prices at Birmingham \$4 per ton, effective May 1.

• **CUTS SHEET, STRIP**—See p. 110 for details of Great Lakes' \$2.00 per ton reduction in hot and cold-rolled NAX sheet and strip. *

Steel Ingot Production by Districts and Per Cent of Capacity



* Revised.

Industrial News Summary—

- **Steel Rate Good For 2 Months**
- **Customers' Business Real Key**
- **Scrap Market Shows Little Zip**

HIGH level steel output this week and heavy steel order backlogs are not the key to activity later in the year. Real signposts are found in the way steel users' business is shaping up. From field reports in the past week there is evidence that steel order volume in the third and fourth quarters will not support the present high ingot rate.

For the next 60 days steel executives have little to worry about as far as profit and operations are concerned. There are enough orders on the books and enough coming in to support the present ingot rate, or close to it, until mid-year at least. But there is no assurance at all that the latter part of the third quarter and the whole of the fourth quarter will show steel activity close to capacity.

A part of the present order volume from steel customers is a hedge in case a coal or steel strike shuts down the industry or greatly curtails output. If steel is not adversely affected by labor trouble later it may be that this extra steel will become inventory—which can be worked off later in the year at the expense of new orders.

Most steel firms had to work hard to get their third quarter books filled up. It was not a case of "letting" the customer on the books. It was a case of going after the business in order that steel mills could have rolling mill schedules ahead of time. Until the material is shipped it can be cancelled by the customer.

It looks as if steel management is going to put up a stiff front on wage and fringe demands from both coal and steel unions. Most officials are against a fourth wage round, excessive social security concessions and pension demands.

THEIR reasons are: (1) Earnings are still company business and not the union's, (2) higher wages mean high steel prices and customers won't pay higher steel prices, (3) social security concessions are a part of the wage bill and are just as much an item as a wage increase and (4) steel people are opposed to talking over noncontributory pensions at this time. Such pensions would have to come out of steel consumers who would balk on higher prices to support them. With the outlook for the steel industry indicating that unusually high operating rates are over for awhile some steel people believe now is the time to take a strong stand.

Steel labor's position is as clear as management's. It wants higher wages, insurance and other security concessions and bigger and better pensions. Philip Murray's steelworkers union

still smarts from the fact that steel companies are paying retired captive coal miners \$100 a month pension—taken out of steel company earnings since steel firms do not sell their coal commercially.

Steel labor's position is: (1) Steel earnings are too high and indicate firms can pay more wages, (2) social security package is old business from 1947 and should be cleaned up this year and (3) if management can vote pensions to their membership the union membership should get similar treatment.

Just how labor can use much force on its demands in view of a down trend in steel business and living costs remains to be seen. But it is certain that the steel union will push social gains and pension negotiations harder than anything since the postwar period began. They claim if they don't get their oar in now it may be too late next year. It would be no surprise if they backed up their demands with a strike if necessary.

STEEL company first quarter earnings reported, averaged about 70 pct ahead of a year ago. Records were made in most cases. Returns for the second quarter, while not expected to be as large, will be close to the first quarter figures.

The steel operating rate continues its slow downward trend. This week it is 97.5 pct of rated capacity, down one half a point from last week. This week's rate is down four and a half points from the high of 102 pct reached earlier in the year.

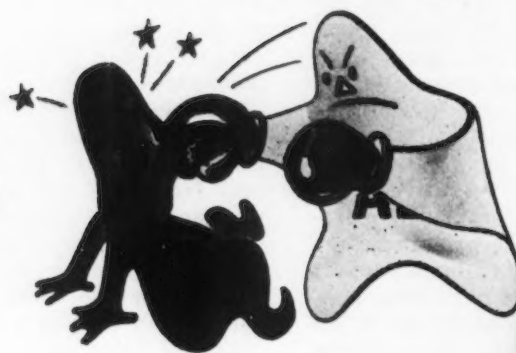
The steel ingot rate for the country no longer reflects the rate for all companies. Some firms, notably smaller ones, are operating at much less than the national average. High rates among the bigger units have held the national ingot rate relatively unchanged in the past few weeks. When and if activity among the large companies drops off the rate for the industry will fall more sharply.

Scrap markets showed little change or activity this week. A slight change at Chicago resulted in an average increase of 50 cents a gross ton in the price of No. 1 heavy melting steel. THE IRON AGE steel scrap composite price this week is \$23.08 a gross ton, up 16 cents a gross ton due to the change at Chicago. Major prices at Pittsburgh and Philadelphia were unchanged. Most steel firms were still on the sidelines as far as large purchases were concerned. Producers' scrap, pig iron and stockpiles were being used for steelmaking.

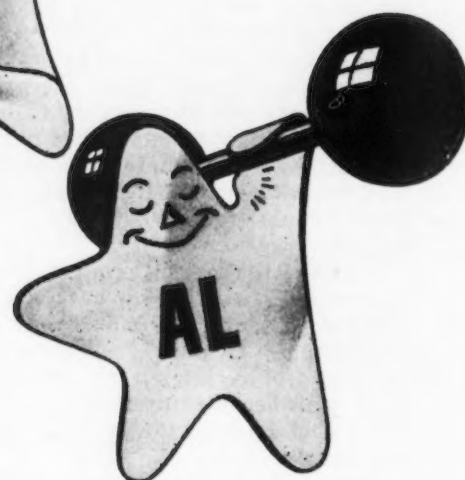
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Employment, Backlogs, New Orders Declining in New England

Boston

• • • New England was one of the first areas in the country to note a rising trend in unemployment. But that doesn't mean that industry here is shriveling on the loom. The optimists like to believe it means that sensitive industries in this 6-state area were the first to feel readjustment pains and will later lead the rest of the nation back to full employment. The pessimists believe the sensitive industries will have to be stabilized on a lower level—that future hopes will have to be pinned on industrial plants of a hardier type.

The most positive and vocal answers to the challenge of the buyer's market have been announcements of price reductions and intensive selling campaigns. At the retail level at least the results have been good. While department store sales in the nation have been running about 2 pct below last year, in New England they have been running about 5 pct above a year ago. But most products fabricated here are marketed on a national basis. So that doesn't assure high production.

The outlook for manufacturing is spotty, whether viewed by industries or by individual firms. The metalworking industries generally have been doing quite well. Recently they have encountered some production cutbacks which might be significant. Backlogs are shrinking and new order volume is disappointing. But current operations are still at a good level.

Shipbuilding in some yards should continue at a good clip for at least 2 years on the basis of building programs already scheduled. Construction of two \$25 million luxury liners for American Export Lines service in the Mediterranean trade was recently begun at the Fore River Shipyard (Quincy, Mass.). Both are for delivery in 1950. The Navy has a \$45 million program just getting under way at Portsmouth, N. H. Other yards have already reported sizable layoffs.

Total construction volume is

Textiles are Still Hardest Hit Order Outlook in Other Lines Seen Spotty

By BILL PACKARD
Ass't News-Markets Editor

holding up well, might even exceed the high level of last year. The leather industry has had tough sledding for the past several months. Makers of specialty steel products have been doing relatively well, especially those who have availed themselves of mod-

ern machinery and methods. Machinery, which has had its ups and downs, now looks no worse than a year ago.

The textile industry has suffered most of all. Unemployment figures show that about 40 pct of the industrial grief in this area can be traced to textiles. Hardest hit of all are soft woolsens. But all is not gloom, even here. There is considerable optimism that this industry will improve later this year.

How does all this average out? Not too well. If textiles are excluded the manufacturing outlook is not at all bleak. Not as good as last year, but still good. However, no one would consider excluding steel from Pittsburgh, and that is

LEVELING OFF?



Industrial Briefs . . .

• **WIN A PRIZE**—The Society of Carbide Engineers, P. O. Box 141, West Hartford, Conn., has announced that it will award a prize of \$50 to the person who submits to them the most outstanding article pertaining to the use of cemented tungsten carbides. All entries must be in by Oct. 15.

• **CASH SALE**—The war surplus general manufacturing plant at Saginaw, Mich., was sold for \$1,300,000 cash to General Motors Corp., Chevrolet Motors Div. The plant was operated by GM during the war for making miscellaneous aluminum aircraft forgings.

• **NEW COMPANY**—Announcement has been made of the formation of Vacuum Casting Corp., 401 E. Erie Ave., Philadelphia. The new company will engage in the development and nationwide licensing of a new process for refining and casting metals in vacuum. Named president was Frederic O. Hess, president of Sellas Corp. of America. Rawson L. Woond, president of Arwood Precision Casting Corp., Brooklyn, was elected treasurer and E. Wellford Mason, secretary.

• **CHANGE OF ADDRESS**—Sheffield Steel Corp. has announced the removal of their Dallas district office to M & W Tower Bldg., 311 South Akard St.

• **NEW COAL BUSTER**—The formation of Hydrabuster Corp. was recently announced in Jackson, Mich. They have acquired designs and patent rights on a device called "Hydrabuster" which is said to "bust" coal in the coal mines without the use of dynamite or powder. Directors are Messrs. R. T. Hair, service manager of Joy Mfg. Co., Franklin, Pa.; Peter F. Hurst, president of Aeroquib Corp., Jackson, Mich.; Don T. McKone of Bisbee, McKone, Badgley & McNally, Jackson, Mich.

• **PUBLIC STORAGE**—Rich Steel Co. has recently announced its move to larger plant and warehouse facilities at 2435 E. 37th St., Vernon, Calif. The new location will make available space for public storage of steel by manufacturers who are temporarily or physically in need of it.

• **NEW HEATING FURNACE**—Salem Engineering Co., Salem, Ohio, will build during the latter part of this year a single-fired skelp mill slab heating furnace, complete with Salem metallic needle type recuperators. The unit will have a rated capacity of 80 tons per hour.

• **TO REPRESENT**—The Denison Engineering Co., Columbus, Ohio, has announced the appointment of the Henry Walke Co., 1310 South Tryon St., Charlotte, N. C., to represent them in North and South Carolina on their multipress line of oil hydraulic presses and accessories.

• **ADVISER**—George D. Ramsay, vice-president of operations, Lone Star Steel Co., Dallas, has been appointed to the Iron and Steel Advisory Committee of the Munitions Board, Washington.

• **SERVICE SHOP**—General Electric, Schenectady, has announced that it will establish a new apparatus service shop and warehouse in Richmond, Va., late this summer. The new shop will be staffed and supervised by men thoroughly trained in factory practices and will contain the latest in machine tools.

• **RESEARCH MEMBER**—Otto Kay has joined the staff of the Armour Research Foundation, Chicago, as an electrochemist in the metals division. For the past 13 years he was with the Solvay Process Div. of Allied Chemical & Die Co., Syracuse, N. Y., where he was employed as senior chemist.

about what textiles mean to some New England towns.

It should be emphasized that even in the industries which have done the poorest some firms haven't ceased capacity operation. Some of them are already assured that business this year will continue to be good for them. But firms with such assurance are in the minority.

What effect has all this had on steel? During the past 3 months a metamorphosis has occurred in the New England viewpoint on steel. Despite the fact that textiles and rubber were already getting their lumps at the turn of the year (and before), steel consuming firms were yapping for more steel. Producers of the limited tonnage in this area didn't stand a ghost of a chance of satisfying the seemingly insatiable demands of their customers, some of whom were buying high priced products in remote areas and bearing an onerous freight burden to their plants.

Now all that has changed. Today the accent is on price and quality. Firms here are scrutinizing their costs as keenly as in prewar years. To this end they welcome the chance to save on steel costs by purchasing wisely. Nor are they overlooking the fact that they are now in a position to insist on uniformity of quality. They are watching with keen interest the growing steel output in Europe. They are comparing costs.

The Supreme Court decision in the Rigid Steel Conduit Case is of special significance here for two reasons: (1) It has provided a strong stimulus to already energetic and well organized efforts to increase steel production in this area—either by expanding present facilities or by constructing new ones. (2) Some manufacturers in this area have been systematically absorbing freight on their products for many years. If the same fate is in store for them the result is obvious and pathetic.

Layoffs in Boston Yards

Boston

• • • Boston Naval Shipyards may lay off 1200 employees before July 1, according to Rear Adm. W. McLaren Hague, commander of the yards.

Household Appliance Field Prepares to Meet Increased Consumer Sales Resistance

Chicago

• • • Considerable activity is going on in the household appliance field in the effort to stimulate sales. Price cuts so far have helped maintain volume, but high manufacturing costs on present lines prohibit further sizable cuts in the retail price. Increased advertising and increased efforts to sell have helped but they still aren't enough.

Starting in May a few large makers of appliances will change their designs in the effort to reach stock model type of appliance which can be sold at lower prices and still maintain a reasonable profit. Automatic pushbutton controls, fancy light indicators, expensive stainless steel trim and all the eye appealing extras and gadgets will be scrapped by some of the leading companies. These makers have experienced plenty of resistance recently in selling their deluxe, hot and cold running door knob, type of appliances.

In the new models the latest operating features will be kept. Quality will be maintained but the appliances will be plain stock models which will sell at much lower prices. One electric deluxe range now retailing for about \$400, will, when cleaned up, retail for about \$180. This cut, the manufacturer believes, will bring back the customers who incidentally have the money but lately have refused to pay for all the fancy postwar extras and gadgets not necessary to the actual performance of the appliance.

Large mail order houses report that so far this year appliances are

still lagging. On the average, refrigerators are 25 pct behind last year's volume. Standard and automatic washers combined are 10 pct and electric ranges 20 pct behind the first quarter sales of last year. One mail order house has experienced a 20 pct increase in the sale of gas ranges, and they told THE IRON AGE this increase was due to the new line of gas stoves introduced early in the year.

All appliance makers and sellers are together in the opinion that the biggest hurdle they have to surmount, next to prices, is the fact that as yet industry has not relearned how to sell.

C-I Adding Coke Ovens

Clairton, Pa.

• • • Coke production capacity to supply U. S. Steel blast furnaces in the Pittsburgh district reached a new high when the first coke was pushed recently from a completely rebuilt battery of 61 byproduct ovens at the world's largest coke plant, the Clairton Works of Carnegie-Illinois Steel Corp.

With the rebuilt battery, there are now 1567 ovens at Clairton, highest number ever, general superintendent H. W. Seyler announced. Its completion is the latest step in U. S. Steel's \$900 million modernization and expansion program throughout the country. More than a year was required for the job.

The new battery is expected to produce close to 325,000 tons of blast furnace coke a year. They

replace a battery that was in continuous operation since 1924. The ovens have hydraulic controlled operating equipment and self-sealing doors.

Demolition of another old battery to be replaced with new ovens started May 1.

Awarded Construction Contract for \$12 Million

Washington

• • • Contract for construction of the Canyon Ferry dam and power plant (a unit of the Missouri Basin project) has been awarded to Canyon Constructors on a bid of \$11,896,425.

While the J. C. McGuire Co. of Los Angeles, will be the operating partner, other members of Canyon Constructors will be Brown & Root of Houston, Wunderlich Contracting Co. of Jefferson City, and the Griffith Co. of Los Angeles.

In addition to the dam, creating a reservoir of more than 2 million acre-ft of water, the project includes construction of a 50,000 kw power plant and related pumping facilities.

Nash Deliveries Rise

Kenosha, Wis.

• • • Deliveries of Nash automobiles to customers during March reached the highest level for any March in 20 years, according to H. C. Doss, vice-president in charge of sales.

According to Doss, March sales showed an increase of 40 pct over February. During the last 10 days of the month, deliveries to customers were 86.3 pct ahead of the final 10 days of February. A price cut of \$20 to \$120 per car was announced by Nash on Apr. 4.

AMERICAN IRON AND STEEL INSTITUTE 350 Fifth Avenue, New York 1, N. Y.			Blast Furnace Capacity and Production—Net Tons						MARCH - 1949 Month			
	Number of companies	Annual blast furnace capacity	PRODUCTION									
			PIG IRON		FERRO MANGANESE AND SPIEGEL		TOTAL					
			Current month	Year to date	Current Month	Year to date	Current month	Year to date	Percent of capacity			
										Current month	Year to date	
DISTRIBUTION BY DISTRICTS:												
Eastern	12	13,353,580	1,106,313	x 3,196,625	30,749	x 95,241	1,137,062	x 3,291,866	100.2	99.9		
Pittsburgh-Youngstown	17	26,625,920	2,199,636	6,305,769	20,069	58,906	2,219,705	6,364,675	98.1	96.9		
Cleveland-Detroit	6	6,984,600	609,086	1,734,764	-	-	609,086	1,734,764	102.6	100.7		
Chicago	7	15,655,390	1,202,081	3,459,784	-	-	1,202,081	3,459,784	90.4	89.6		
Southern	9	5,010,060	409,580	1,229,265	7,471	x 21,094	417,051	x 1,250,359	98.0	101.2		
Western	4	2,912,300	235,176	676,695	-	-	235,176	676,695	95.0	94.2		
TOTAL	37	70,541,850	5,761,872	x 16,602,902	58,289	x 175,241	5,820,161	x 16,778,143	97.1	96.4		

Lone Star Steel's Expansion Plans Seen a Hot Subject in Texas

Dallas

• • • Steel is a hot subject here. Industrialists of the rest of the state are severely critical of Lone Star Steel's plans for expansion, but in Dallas and East Texas "Smile when you say that, Pahdner."

Many steel men in the state believe Sheffield Steel's plant in Houston plus the small mills like Texas Steel Co. in Ft. Worth are enough to supplement the major steel tonnages which are imported into Texas from the large steel-making centers. The two steel plants mentioned concentrate on bars, billets, plates, small shapes and wire products.

As pointed out previously (see IRON AGE, p. 113, Mar. 31), the biggest single steel product consumed in Texas is pipe. As yet there is no pipe mill in the state. A. O. Smith Corp. seriously considered building one last year, but these plans were shelved. Transcontinental Pipeline Co. is still interested in getting a pipe mill somewhere in the Texas area.

Lone Star Steel is pinning its future on pipe. Nobody doubts that they could sell their entire production within a few hundred miles of the proposed plant. A lot of experts, however, doubt that Lone Star can sell pipe competitively in a normal market. These men point out that under the best of conditions the plant could not be in operation for 1½ years should construction start immediately. Another factor is costs Lone Star has gained the reputation of a high cost plant. Actually, it was more of a high priced plant than a high cost plant.

George Ramsay, vice-president of operations, Lone Star Steel, told IRON AGE his costs on making iron are now close to that experienced in other steel centers. He does not expect that the steel ingots per ton or finished products will be abnormally high.

On Jan. 17 Lone Star formally applied for a \$65 million RFC loan with the local Dallas office. This loan has aroused considerable controversy and the mention of it in

Company Pins Its Future On Pipe Despite Gloom From Experts

By D. I. BROWN
Chicago Regional Editor

industrial circles sooner or later brings excited talk about state's rights.

Lone Star's application to the Dallas RFC office consisted of the following facilities: Five 150 ton stationary openhearth furnaces; a 40 in. reversing blooming mill; a two stand, 110 in. plate mill; a 66 in. six stand, four high continuous strip mill. In addition are two electric weld pipe mills to produce pipe from 1½ in. to 20 in. OD. These units, plus all auxiliary equipment, Mr. Ramsay believes, can be completed and in production in 12 to 18 months from the date construction is started.

Annual ingot capacity of this mill, Mr. Ramsay told IRON AGE, is estimated at 500,000 net tons of ingots. This will produce 350,000 net tons of pipe annually. In table I are the annual capacities of the rolling and pipe mills listed above.

The RFC loan already asked for would complete stage 1 of the plant. The present blast furnace and coke ovens are adequate to supply iron to the openhearth to meet the initial ingot capacity.

Present plans call for teeming 7 to 8 ton ingots in molds about 24 in. by 25 in. Circular natural gas fired pits will be used. The blooming mill will convert to slabs

for rolling on the plate mill or the strip mill.

The planned plate mill will be capable of making sheared plates up to 96 in. wide. This mill will also roll the plate from which the electric welded pipe will be made. Considerable flexibility is possible in this layout. The major tonnages could be shifted around so that the product mix or finished items could be easily changed to meet different market conditions.

Should the loan go through and the plant be built, Lone Star will concentrate on the melting department, blooming mill, and plate mills. They will attempt to get these units into production as quickly as possible, hoping that they can make and sell plates while the pipe and strip mills are being finished. It will be noticed that the maximum capacity of each rolling mill is more than enough to accommodate the entire ingot output of the five openhearth with the exception of the plate mill.

Lone Star has conducted an extensive market survey of the area. E. B. Germany, president, and Mr. Ramsay have held meetings with many steel consumer associations. The tenor of these groups of consumers is as follows, "Yes, we will buy from Lone Star if and when they get going and if their delivered price is competitive with the prices from the other mills."

The nearest producing points making the products Lone Star hopes to make are in most cases a fortune in freight rates away. Sheffield makes plates at Houston. Their annual plate capacity is a little over 180,000 net tons. The difference in delivered costs between Lone Star and Sheffield is negligible, but the next major plate producer is Tennessee Coal & Iron in Birmingham with a capacity of 400,000 net tons of sheared plates which run up to about 130 in wide.

These are the closest competitors to Lone Star on plates and the nearest pipe mill is in Gadsden.

TABLE I

Annual Rolling Capacities of Units Included
in Stage I of Program

	Net Tons
40 in. Blooming Mill.....	1,080,000
110 in. Plate Mill.....	672,000
66 in. Hot Strip Mill.....	579,000
Electric Weld Pipe Mill.....	450,000
	2,781,000

TABLE II

Comparative Freight Rates — Iron or Steel

(Dollars and cents per net ton)

(Rates do not include 5 pct emergency increase in freight charges effective Jan. 11, 1949)

TO →	Houston, Tex.								Dallas, Tex.						Odessa, Tex.	
	Carload								Carload						Carload	
	All Rail		Rail & Barge		Rail & Ocean		Bargelots (500 N.T.)		All Rail		Rail & Barge		Rail & Ocean		All Rail	
	Pipe	Fin. I or S	Pipe	Fin. I or S	Pipe	Fin. I or S	Pipe	Fin. I or S	Pipe	Fin. I or S	Pipe	Fin. I or S	Pipe	Fin. I or S	Pipe	Fin. I or S
Lone Star, Tex.*	\$12.00								\$ 9.20						\$14.60	
Gadsden, Ala.	13.80	\$12.80					\$12.80	\$12.80	18.60	\$21.00					23.00	\$26.20
Chicago, Ill.	16.00	15.90	\$13.00	\$13.80			9.87	9.87	19.60	22.20	\$18.60	\$21.00			23.60	26.40
Milwaukee, Wis.	16.20	16.60	13.20				10.28	12.72	19.60	22.60	18.60	21.40			23.60	27.00
Lorain, Ohio	19.60	19.20	16.40				(x)10.35		21.60	24.00	20.60	22.80			25.00	29.00
Pittsburgh, Pa.	20.80	19.20	18.20				9.42	9.42	22.40	25.00	20.60	22.60			25.80	30.00
Sperrows Point, Md.	21.50	20.20	16.05		\$16.05	\$17.05			24.80	27.40			\$24.05	\$24.05	27.80	32.40

(x) Minimum tonnage, 2500 net ton.

* Present all rail pipe carload rates from Lone Star, Tex. (do not include 4 pct E.C.).

(To foster local industry Texas Railroad Commission may authorize lower rates.)

Ala. This mill makes larger pipe only, 24 in. and up. Table II portrays the freight advantage enjoyed by Lone Star should they get into the pipe business.

The LPG industry in Lone Star's market area has estimated that their annual requirement based on postwar years' demand is 300,000 net tons of plates for the general Texas area. The plate requirements of the construction industry plus all others is not known, but it appears that Lone Star's planned capacity of 672,000 net tons of plates could easily supply the plate requirements of the entire area in normal times. However, the initial product mix plate tonnage is but a portion of the present day requirements. Hot-rolled sheets and strip, particularly 18 gage and heavier, are much in demand in Texas. Again it appears Lone Star's mill could supply that market given normal demand when the mill is built.

Today all of the pipe shipped into Texas comes from Gadsden, Ala., Pittsburgh, Chicago, Lorain, Ohio, Youngstown and Milwaukee. Negligible tonnages come from elsewhere. Every time the freight rates go up Lone Star's market possibilities on pipe are enhanced. This, of course, is true for other steel products from Sheffield in Houston as well.

Provided the loan is granted, Lone Star's future in steel depends on steelmaking costs and how large a freight umbrella they will have to operate under when production gets under way.

RFC has never before authorized a loan so large under the liberal terms asked by Lone Star Steel. RFC, when pressed for a statement, told IRON AGE, "We'll certainly have to require some equity money."

Rather than run through Congressional hearings and new legislation to broaden RFC's freedom

of operation, it is believed that Senator Patman and Lone Star will probably have to fit the loan application to present RFC requirements. This means a 10 year amortization plan, equity capital, evidence of probable repayment, and anything else the RFC examiners believe is necessary to justify their approval of the loan.

GM to Lease Ohio Stack

Pittsburgh

• • • General Motors plans to lease the Struthers Iron & Steel Co. blast furnace at Struthers, Ohio, for 5 years at a \$200,000 a year annual rental. Since the fall of 1946 it has been leased and operated by Kaiser & Frazer Parts Corp., under a 3-year contract that expires Aug. 31.

A minority stockholder had secured and then withdrawn an injunction to halt the GM deal. He had claimed the unit could earn \$400,000 for its owners if operated by Struthers. Apparently he was later convinced that the old furnace, long known as a high cost producer, would do better in General Motors hands than it would trying to sell merchant iron in a buyers' market.

The furnace is now down for relining. Richard M. Marshall, president of Pittsburgh Coke & Chemical Co., parent company of Struthers, expects it to be ready to be blown in again about July 1.

Baldwin Reduces Prices

Philadelphia

• • • The Baldwin Locomotive Works has announced a price reduction equivalent to 5 pct on its line of diesel-electric locomotives, effective on all shipments made on and after Monday, Apr. 18, 1949.

Price reductions range from \$4400 on a 750-hp switcher and \$5000 on a 1000-hp switcher to \$10,600 on a 2000-hp heavy-duty transfer locomotive. In the case of a 6000-hp four-unit freight locomotive, the reduction amounts to \$31,400.

West Coast Reductions

Los Angeles

• • • Bethlehem Pacific Coast Steel Corp. is announcing the following price reductions: Carbon steel bars, f.o.b. Los Angeles, reduced from \$4.10 to \$4.05; structural shapes, f.o.b. South San Francisco, reduced from \$4.30 to \$3.80; f.o.b. Seattle, reduced from \$4.30 to \$3.90.

Brighter Prospects for Brazilian Manganese; Development Work Necessary

Washington

• • • Taking the edge from the oft-heard rumors of stoppage of Russian manganese shipments to this country is the indication, from Commerce Dept. sources, that prospects are brighter for increased imports from Brazil.

Shipments of manganese to the United States from Brazil have been running around 150,000,000 lb a year—about 60 pct of total manganese imports from Latin America.

Brazil has relatively large manganese deposits. Besides the manganese property owned by the U. S. Steel Corp. in Minas Gerais, there are other important deposits in the same general region. Also, there is some production from deposits in Bahia and Mato Grosso.

However, both production and shipments have been on a relatively small scale generally. This has been because of inadequate transportation facilities as well as a Brazilian policy of retaining most of its national resources for building up its own industries.

Possibility of development of large scale projects has been subject to discussion by the joint Brazil-United States Economic Mission. Also, officials of North

American steel companies have been doing spadework along these lines.

While there has been some discussion of severely limiting exports of manganese from Central Brazil (because of plans for expanding Brazilian steel production), actually the available sup-

ply is probably large enough to take care of domestic needs with a sizable export surplus left over, if properly developed.

The immediate difficulty to be overcome now seems to be the working out of a satisfactory agreement by which aid could be extended in developing and expanding both production and transport facilities and at the same time assure preferential treatment for domestic concessionaires and Brazilian industry.

Approves New Service On Nodular Gray Iron

Cleveland

• • • Directors of Gray Iron Founders' Society have approved a new Society service to members in connection with experimental work on production of nodular gray iron.

Under the plan members are privileged to send to the society's office samples of irons believed to possess nodular graphite structures. Samples submitted will be tested in accordance with the following procedure:

Chemical analysis including the residual content of alloy used for nodulizing;

Mechanical properties including transverse strength, tensile strength and ductility measurements;

Brinell hardness;

Metallographic examination, including furnishing typical photomicrographs of the structure;

General comments on the material which may be helpful to members in evaluating the results of their experimental work.

It is estimated that the cost of the service to members will merely cover society costs for the tests.

Produces New Basic Oils

Buffalo

• • • Spencer Kellogg & Sons, Inc., announced two new basic oil materials for paints and varnishes are being produced in commercial volume.

The new products are linseed or soybean oils compounded with dicyclopentadiene, a by-product obtained in the cracking of mineral oil or the production of coke. The linseed base oil is called Cykelin, the soybean base oil Cykelsoy.

Dr. Alex Schwarcman, vice-president in charge of research, said the new protective coating oils have the properties of a paint oil, such as brushability, and those of a hard, fast-drying varnish.

GE Cuts Locomotive Prices

Schenectady

• • • General Electric Co. recently announced a price reduction of 5 pct on its 44 and 70 ton standard diesel-electric locomotives, which comprise the light-weight portion of the Alco-GE locomotive line.

This price reduction became effective on all locomotives of this type shipped on and after Apr. 16.

Coming Events

- | | |
|----------------|--|
| May 5-6 | American Society for Quality Control, annual convention, Boston. |
| May 11-13 | National Welding Supply Assn., annual convention, Cincinnati. |
| May 12-13 | Rail Steel Bar Assn., annual meeting, Chicago. |
| May 12-13 | Instrument Society of America, spring meeting, Toronto. |
| May 18-20 | National Steam Specialty Club, annual meeting, Skytop, Pa. |
| May 19-21 | Society for Experimental Stress Analysis, spring meeting, Detroit. |
| May 23-24 | American Steel Warehouse Assn., annual meeting, Atlantic City, N. J. |
| May 23-25 | American Gas Assn., production and chemical conference, New York. |
| May 25-27 | Gas Appliance Manufacturers Assn., annual meeting, Chicago. |
| May 25-27 | Machinery Dealers National Assn., annual meeting, Virginia Beach, Va. |
| May 30-June 1 | Metal Treating Institute, spring meeting, Quebec. |
| June 2-4 | Electric Metal Makers Guild, annual meeting, Chicago. |
| June 16-17 | Malleable Founders Society, annual meeting, Hot Springs, Va. |
| June 27-30 | American Electroplaters Society, annual meeting, Milwaukee. |
| June 27-July 1 | American Society for Testing Materials, annual meeting, Atlantic City, N. J. |

First Quarter Steel Profits 70 Pct Above Same Period of 1948

Pittsburgh

• • • The first quarter of 1949 was one of the best in steel history. As a group, the industry earned about 70 pct more than it did in the comparable quarter of 1948. Though many companies reported a lower net than they had for the last quarter of 1948, others had to go back to the booming third quarter of 1929 to find higher quarterly profits.

There are at least four reasons why this quarter was so much better than its 1948 twin: (1) All-time record production; (2) higher prices; (3) mild weather; and (4) completion of many modernization programs.

Compared with recent steel earnings the January-March quarter was very fine. Set down next to profits in other major industries they show a contrast that remained disappointing to many a steel stockholder. Nor did he enjoy predictions of a dip in steel operations later this year. Consoling perhaps is the possibility that second quarter income of major carbon steel producers will be almost the same as first quarter figures.

Steel officials' statements don't indicate when the dip is coming

Record Output Chief Factor; Leaders See Lower Rates Due Later This Year

BY GEORGE F. SULLIVAN
Pittsburgh Regional Editor

or how steep it will be, though most companies expect to hold operations at high levels for the first half of the year. Only Ernest T. Weir, the most outspoken executive in the industry, would hazard a guess—and he called it that, not a prediction. He said he was thinking the ingot operating rate might be near 75 pct by the end of the year.

Meanwhile there has been no hold up on major improvement plans in the industry. U. S. Steel spent \$52 million for the purpose in the first quarter, or \$16 million above authorized reserves for the purpose. Jones & Laughlin plans to go ahead with the second half of its \$210 million expansion and modernization program by installing 800,000 tons of new openhearth capacity at Pittsburgh Works. Inland is redesigning its openhearts to boost capacity by 600,000 tons. It plans to make more extensive use of oxygen.

For the industry as a whole, this year's expansion bill of about \$627 million will be \$44 million over the 1948 figure, according to the American Iron & Steel Institute.

This will take additional financing in some cases. Jones & Laughlin stockholders gave management the right to increase outstanding indebtedness and to sell more common stock when or if the time seemed ripe. This is not the time: J & L stock, quoted this week at about \$27 a share, is backed by \$89 worth of net assets. With few exceptions this is typical throughout the industry.

The ingot operating rate for the

industry for the quarter, as reported by the American Iron & Steel Institute, was 101.5 pct of rated capacity. Several companies ran well above this rate. Among them: Jones & Laughlin, 108; Youngstown Sheet & Tube, 106.3; Bethlehem, 105.2; and Inland, 103.3. U. S. Steel hit the average.

Like most other companies, both U. S. Steel and Bethlehem made production records during the quarter. Big Steel's shipments of 5,491,216 net tons set an all-time record. Bethlehem hit an ingot output peak, though its shipments, at 2,658,455 tons, were 155,128 tons below the fourth quarter 1948 figure.

U. S. Steel's sales in the first three months of 1949 were \$664,892,529, against \$556,002,239 in the same period of last year. Bethlehem's comparable net billings were \$363,513,556 and \$295,576,646, respectively.

As They See It

IRVING S. OLDS, U. S. STEEL—

"There is a gradual leveling off in steel demand. It is a healthy situation and I believe that further leveling off will also be gradual. The high operating rate may extend into the third quarter but that does not mean that currently high rates will continue unchanged until that time."

EUGENE G. GRACE, BETHLEHEM—

"There is no doubt but what steel supply has reached the point where it is meeting demand . . . The second quarter, as we see it, will have capacity production in our company . . . I am not as pessimistic on the last half of this year as some other statements reported to have been made by other steel people."

BEN MORRELL, JONES & LAUGHLIN—

"Although we are experiencing a slackening in demand . . . our general level of business is still good . . . we see good operations ahead of us, in regard to the bulk of our business, for some months to come."

ERNEST T. WEIR, NATIONAL STEEL—

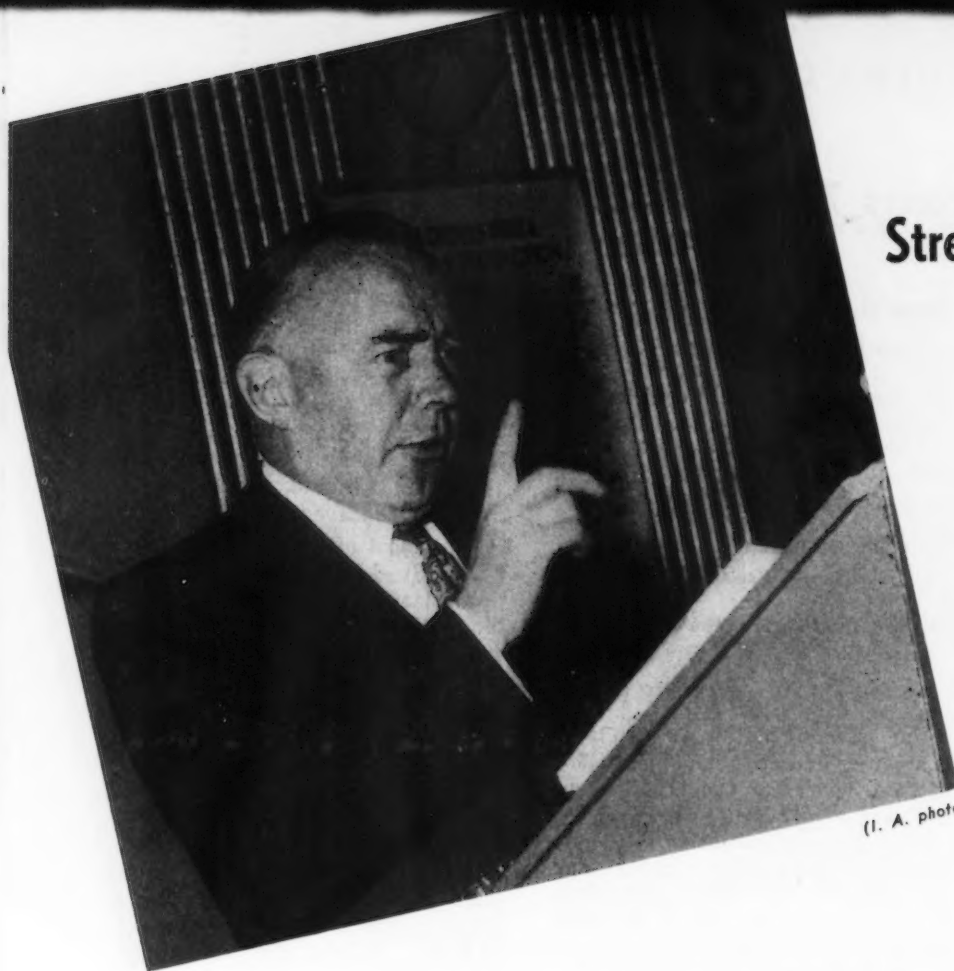
"Industry may have labor trouble this summer; there may be quite a little interference with production. . . . You will have lower steel prices but I don't know when. We don't know where we stand. If we get down to 75 or 80 pct operation it will be a different picture."

FRANK PURNELL, YOUNGSTOWN SHEET & TUBE—

"Present indications seem to warrant the prediction that during the last half of the year operations will be at a somewhat lower rate. . . . Principal cost items will probably not be lowered this year."

STEEL COMPANY EARNINGS

Company	First Quarter 1949 Earnings	First Quarter 1948 Earnings
U. S. Steel	\$49,928,670	\$27,857,341
Bethlehem Steel	33,129,574	15,499,331
Republic Steel	15,298,628	8,132,980
Jones & Laughlin	9,868,895	5,150,704
National Steel	14,753,775	8,661,760
Youngstown Sheet & Tube	10,022,660	6,423,566
Armco Steel	8,621,791	5,867,347
Inland Steel	9,254,230	8,458,544
Sharon Steel	2,905,301	1,956,346
Colorado Fuel & Iron	2,518,797	1,632,631
Wheeling Steel	4,010,137	2,781,257
Crucible Steel	1,714,315	567,786
Pittsburgh Steel	2,185,508	900,310
Portsmouth Steel	2,043,221	1,028,545
Granite City Steel	821,018	812,097
Copperweld Steel	715,637	492,697
Alan Wood Steel	1,385,687	672,110
Midvale Co.	38,816	6,537
Allegheny Ludlum	1,542,195	1,307,471
Barium Steel	1,031,388	676,062
Continental Steel	203,086	213,417
Keystone Steel & Wire	1,248,354	1,368,224
Acme Steel	1,286,848	1,964,468
Carpenter Steel	537,245	429,694
Follansbee Steel	461,569	611,305
Bliss & Laughlin	362,791	392,599
Superior Steel	104,645	225,717



Stress Company Analysis

• James Y. Scott, Van Norman Co., Springfield, Mass., a guest speaker at the Industrial Supply Convention, told Assn. members that the "U. S. has at present greater capacity to produce goods than the country can absorb, and that the most important function of management in 1949 is sales."

(I. A. photo)

Cleveland

• • • Warning that the sales job for 1949 is the most difficult ever placed before a manufacturer or distributor, James Y. Scott, president, Van Norman Co., Springfield, Mass., speaking before the Industrial Supply Convention here, called for companies to clean house.

"A dynamic sales force should be the heart of our 1949 program," Mr. Scott declared.

"This program should call for a thorough analysis of our sales forces, our service, our financial status and also our productive capacities, a job that has been delayed by both manufacturers and distributors alike," he added.

Mr. Scott, who is also president, Morse Twist Drill & Machine Co., New Bedford, Conn., said that a thorough going over "of our organizations either by your own management or by an outside group of engineers pays big dividends.

"At both Van Norman and Morse companies we have separate engineering firms who are assisting us in bringing to our dis-

tributors, and so to our customers, the benefits of modern metallurgy, modern sales methods, modern financial procedure and modern packaging.

"It has been one of the fetishes of the Van Norman Co., the parent company of Morse, to have exclusive distributors on their machine tools throughout the world and in the opinion of the management of our company, that feature alone has helped more than any other to bring Van Norman to the fore as one of the largest machine tool manufacturers in America."

According to Mr. Scott, the policy at Morse will be to do "everything possible to increase the unit sales of our distributors, to reduce his overhead cost and make it easier for him to sell our product."

He hinted that manufacturers and distributors should not expect too much from the European Recovery Program, pointing out that the rehabilitation of European manufacturing facilities is to be carried out to the greatest degree possible through the interchange of trade between the various participating countries.

He said if France needs ten milling machines and England has

them available, "it is to the advantage of our program in Europe to have these supplied from England instead of from the Van Norman Co. here in the U. S.

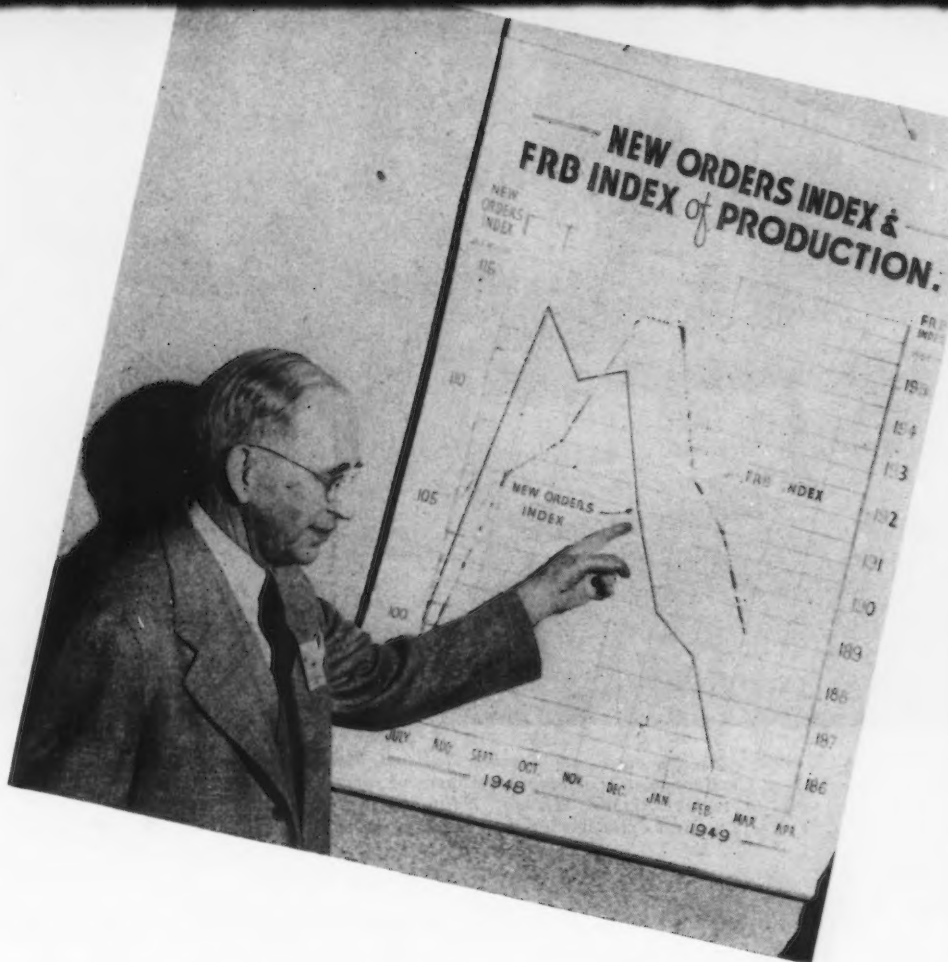
"Likewise, within the past few weeks a new directive has been issued whereby all billing on the



• New president, National Supply & Machinery Distributors' Assn.—Ray C. Neal, president, R. C. Neal Co., Inc., Buffalo.

at Convention

• Chester Conner, manager industrial sales, B. F. Goodrich Co., inspects chart based on new order-bookings by members of American Supply & Machinery Manufacturers' Assn. which is said to anticipate business turns one month ahead of Federal Reserve Board's Index.



ERP goods will be net, without distributors in those countries being paid in the currency of the country to which the goods are assigned."

Other speakers in addition to Mr. Scott were J. G. Geddes, ASMMA president and vice-presi-



• New president, American Supply & Machinery Manufacturers' Assn.—K. R. Beardslee, vice-president, Carboly Co., Detroit.

dent, H. K. Porter, Inc.; W. H. Gebhart, vice-president, Henry Disston & Sons, Inc.; K. R. Beardslee and R. C. Neal.

The 3-day annual convention, Apr. 25-27, representing a \$6 billion industry, held jointly by the American Supply & Machinery Assn., National Supply & Distributors' Assn. and Southern Supply & Distributors' Assn., was marked by a record attendance of more than 2000 management-level industrial supply men who met to discuss common problems of better industrial distribution.

K. R. Beardslee, vice-president, Carboly Co., Inc., Detroit, was elected president, American Supply & Machinery Manufacturers' Assn. Ray C. Neal, R. C. Neal Co., Buffalo, was named president, National Supply & Machinery Distributors' Assn. and George G. Weaks, president, Weaks Supply Co., Ltd., Monroe, La., was elected to head Southern Supply & Machinery Distributors' Assn.

Vice-presidents named by the American Assn. were F. T. Stone, president, Columbus-McKinnon Chain Corp., Tonawanda, N. Y., and Ralph M. Johnson, vice-president, Norton Co., Worcester, Mass.

The National Assn. elected as vice-presidents Harold E. Torell, Syracuse Supply Co., Syracuse, N. Y.; J. H. Ruddell, Central Rubber & Supply Co., Indianapolis, and William A. Hazeltine, J. E. Hazeltine & Co., Portland, Ore.

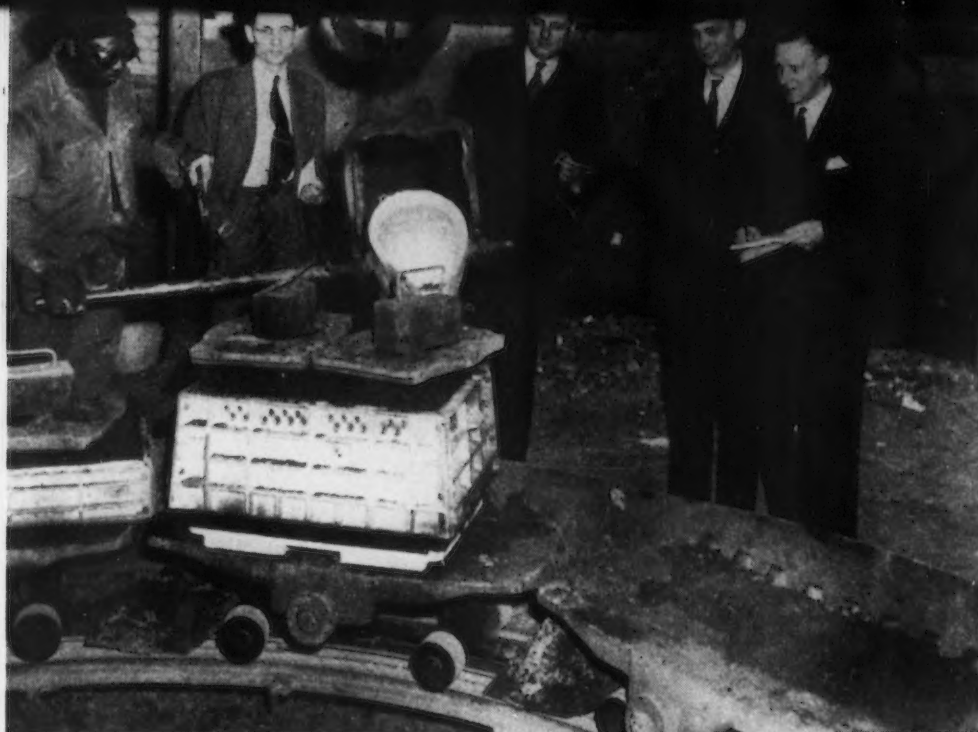
The Southern Assn. named as vice-presidents H. LeNeave, Allison-Erwin Co., Charlotte, N. C., and J. W. Pitts, president, Brown-Roberts Hardware & Supply Co., Ltd., Alexandria, La.

Officers of all associations are elected for 1949 and 1950.

At the final session of the American Assn., R. C. Neal presented to the group recommendations for improved methods of operation between manufacturers and distributors, based upon a study made by the Joint Industry Committee of the National and Southern Assns.

Easily the outstanding feature of the convention was a novel conference booth program by which manufacturers, having registered booths with management level representatives in attendance, met with distributors who circulated

(Continued on page 146)



VISITORS: English steel men touring National Malleable & Steel Castings Co. Watching steel pouring operation are left to right: Arthur McNab, William Hardy, B. C. Yearley, assistant manager of the company, and J. Jackson.

New York

•••The first British industry group to arrive in the United States to study our industrial techniques left last week after a 6-week tour of American steel foundries. The 15-man group of steel foundry managers, technical men and workers left the country with a feeling of complete agreement on foundry techniques that could well be adapted to British practice.

The British foundrymen believe that our foundry techniques permit better use of a relatively lower degree of skill on the part of the individual foundryman. This is promoted by greater standardization of foundry products permitted by casting buyers, plus much greater mechanization of foundry operations.

As an exporting nation primarily, the United Kingdom will be unable to apply standardization to the extent of our own industry. But they see that much can be done to improve the outlook of the domestic buyer. Railway buggies in this country, for example, are almost completely standardized, in some cases requiring only the addition of another section or two to the basic pattern. British foundries have been catering to rail-

way designers whose products are non-standard.

In the United States, orders for 10,000 or more units of a kind are often placed with a single foundry. In Britain, large orders are generally spread among a number of foundries in order to gain competitive advantages. But there is no opportunity under this system for the foundryman to set up his plant for a large run. British steel foundries have backlogs of about a year.

Mechanization techniques, as applied by our smaller foundries, may soon be employed in British practice. But there is no prospect of adapting the type of mechanization used by our large production foundries. The principal limiting factor on British mechanization is the power potential of the country. In winter, this problem is acute.

The British foundrymen expressed considerable interest in our gating and risering methods, which can be applied in large part to British practice to simplify cleaning room operations. The oxyacetylene cutting torch is used to a much greater extent by U. S. foundries, particularly for removing fins and burnt-in sand, and cutting out faults before weld filling. The finished appearance of

British Foundry

By JOHN ANTHONY
Eastern Regional Editor

many of the castings made by U. S. foundries was said to be not as fine as in British practice. But the foundrymen considered that their output could be stepped up and costs lowered significantly if casting buyers could be educated to reduce their inspection standards where appearance is not important.

Our molding practice was of great interest to the visiting foundrymen. The sand we use is of finer grain size. It is more easily rammed into the mold. But the proper type of sand for them to adopt our practice is not available in the United Kingdom. They say that technical methods for sand control are not used as widely by our foundries.

The foundry melting practice of the two countries differs because of the lower phosphorus and sulfur content of the scrap available here. Our foundries are in a position therefore to take advantage of acid furnace practice, while theirs is of necessity basic. The British found that they have been casting essentially the same steel analyses as we do.

The British say that our system of foundry research is more conducive to quick results than theirs. They are just starting to form an industry research group. The organizing work is being done by the British Steel Foundrymen's Assn., a trade group comprising 75 pct of the nation's steel foundries. The Institute of British Foundrymen includes ferrous and nonferrous foundries and has no research organization.

The British found that the output of castings per man-hr is greater here, even when consideration is given to the jobbing out of

Group Completes Its U. S. Tour; Impressed by Techniques

patternmaking and some other functions by many foundries. Wage scales of foundry workers are about the same in both countries on a cost-of-living basis. Incentive wages are the rule in the British foundries, but it is more complicated for the worker abroad to calculate his earnings. Foundries in the United Kingdom must guarantee their workers a minimum 34-hr work week once they have begun the week.

During the 6-week period, the British foundrymen visited the following foundries: American Steel Foundries, Newark, N. J.; Cooper Alloy Foundry Co., Hillside, N. J.; Grede Foundries, Inc., Milwaukee; Sivyver Steel Casting Co., Milwaukee; Bucyrus-Erie Co., Milwaukee; Crucible Steel Casting Co., Milwaukee; Ford Motor Co. River Rouge plant, Windsor, Ont.; Michigan Steel Casting Co., De-

Standardization, Large Orders,

Power Potential, Permits

Mechanized Production

o o o

troit; National Malleable & Steel Castings Co., Cicero, Ill.; Bonney-Floyd Co., Columbus, Ohio; Buckeye Steel Co., Columbus, Ohio; Ohio Steel Co., Springfield, Ohio; Dodge Steel Co., Philadelphia; Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.; General Steel Castings Co., Eddystone, Pa.; and Lebanon Steel Foundry Co., Lebanon, Pa.

In June, representatives of the

British steel forgings industry will arrive in the United States to study our forging practice. It is understood that there are tentative plans for a team of U. S. steel foundrymen to visit Britain's foundries later on in the year. The international plant visitation is sponsored by the Anglo-American Council on Productivity set up in conjunction with the program of the Economic Cooperation Administration.

Wages and salaries of the British team were paid by their own firms. The members of the team prepared themselves for their trip by spending several weeks visiting steel foundries in England to get a picture of their industry as a whole. Upon their return they will revisit these plants to give them the benefit of what they have learned here.

Armco Ready With Fourth Continuous Coating Line

Middletown, Ohio

••• A fourth major unit for continuous production-line coating of flat-rolled steel in a bath of molten zinc or aluminum will be put into operation in May by Armco Steel Corp. at Middletown, Ohio, according to W. W. Sebald, president. Armco's original unit went into production at Butler, Pa., in July, 1936.

Mr. Sebald said that zinc-coated steel made by this method has changed fabricating operations for many manufacturers, since the sheets can be severely formed or drawn without flaking or peeling of the zinc. No coating operations are necessary after fabrication.

With installation of the fourth unit at the Middletown plant, the patented coating process will be offered to other steel companies under license arrangements with Armco, Mr. Sebald said.

Under the Armco process, cleaned strip steel enters a furnace with controlled atmosphere

consisting mostly of a mixture of hydrogen and nitrogen with air essentially excluded. Here the surface of the strip is made ready for its journey through the bath of molten zinc. Here the steel is also annealed and softened.

Blast Furnace Concrete Requirements Large

New York

••• The concrete used in the foundation of one blast furnace and part of its auxiliaries is enough for the foundations of 140 moderate-size, two-story houses, according to American Iron & Steel Institute. A furnace with daily capacity to produce about 1200 net tons of pig iron also requires many other construction materials, including 4000 tons of iron and steel, over 3 million refractory bricks, 50 tons of copper and large quantities of insulation blocks.

Depending on the nature of the ground where the furnace is located, large quantities of piling may be needed in addition to the

foregoing materials. One job in recent years took over 30 miles of wood and concrete piling. Not included in the foregoing are large quantities of steel, timber and concrete for docks, railroad trestles and ore storage in conjunction with a blast furnace. Power and blower houses, ladle cars for hot metal, locomotives and cranes also take great quantities of concrete, brick, steel and other materials.

Film Reveals Hidden Costs

Stamford, Conn.

••• Here's Your Worksaver, is the title of a new 16 mm sound film recently produced in full color for Yale & Towne by The Princeton Film Center. The film has a running time of 15 min.

Recent studies show that, as a general average, approximately 30 pct of production time goes into material handling, the film, parts of which are in colorful animation, points out the constant danger of hidden costs that creep into material handling, and demonstrates positive ways to insure against them.

Zinc Price Reduction Reflected in Lower Quotations for Pipe

New York

• • • Reflecting reduction in price of zinc, U. S. Steel Export Co., U. S. Steel subsidiary, announces the following new prices with freight included to New York, Philadelphia or Baltimore.

These prices will apply on car-load lots and are effective with shipments made from the mills on and after 12:01 a. m. Apr. 21, 1949. Prices are subject to seller's current list of extras and deductions and conditions of sale. All sales are subject to seller's prices in effect at time of shipment.

American Standard Pipe, T & C	
Buttweld, 2½" and 3"	
Galvanized.....	24.6%
Seamless, 3½" to 6"	
Galvanized.....	17.1%
English Gas Tubes, T & C	
Buttweld, 2½" and 3"	
Galvanized.....	26.5%

Contract Cutback Halts Bell's Rehiring Program

Buffalo

• • • The Bell Aircraft Corp. has halted its rehiring program at 2600 because of a cutback in an \$8 million subcontract from the Boeing Aircraft Co. The company had planned to increase employment to 2800 by July.

The Boeing order called for jet nacelles, power packs, horizontal stabilizers and elevators for B-47 stratojet bombers. Boeing decided

to recall work to its Seattle and Wichita plants because of loss of an order for B-54 medium bombers.

A Bell spokesman said the Boeing order "has been partially cut back and the rest is in various stages of negotiation." Bell had already started initial production on certain phases of the contract. Most of the work, however, had consisted of production planning, tooling and stocking of materials.

Any loss to Bell, the spokesman said, will be offset in part by a \$4 million subcontract from the Consolidated Vultee Aircraft Co. for the manufacture of jet nacelles for the B36 bomber. Changes, if any, in the current employment of 2600 will be of a "very minor nature," he said.

GE Sales, Earnings Up

Schenectady

• • • Operations of General Electric Co. and its consolidated affiliates for the first 3 months of 1949 resulted in a profit available for dividends of \$26,702,978, or 93¢ a share of common stock, according to Charles E. Wilson, president. This represented an increase of 5 pct over the \$25,389,149, or 88¢ a share, earned in the corresponding period of 1948. These earnings were equivalent to 6.5¢ on each dollar of sales in the 1949 period compared with 6.9¢ a year earlier.

Consolidated net sales billed in the first quarter of this year totaled \$411,615,528, or 12 pct more than the \$365,957,990 billed in the same period a year ago.

ECA Authorizations Include Metal Goods; Total Now \$5.1 Billion

Washington

• • • New procurement and reimbursement authorizations for United States metal goods totaling \$1,790,000 were issued by the Economic Cooperation Administration last week. Included were \$796,000 worth of nonferrous metals and ores, \$662,000 worth of construction and mining machinery, and \$331,000 worth of iron and steel mill products and materials.

At the same time, adjustments and changes in former ECA authorizations reduced scheduled allocations for iron, steel and machinery by several million—largely materials which had been ordered for the last half 1948.

After adjustments for both canceled and new authorizations for the week ending Apr. 21, cumulative ECA authorizations amounted to \$5.1 billion.

Included in the grand total is the recent authorization for purchase from American manufacturers by the Netherlands of \$800,000 worth of engines and turbines for first half delivery next year.

Steelworkers Elected To Represent Ore Miners

Birmingham

• • • A fight between two unions of the CIO over which could represent ore miners of the Tennessee Coal, Iron & Railroad Co., here, has ended in a victory for the United Steelworkers of America.

The vote was 2696 for the steelworkers, 2233 for the International Union of Mine, Mill & Smelter Workers. There were 10 votes for neither union, 10 were voided and 24 were challenged.

The IUMM & SW, which had represented the miners, charged that secessionists were playing into the hands of the company. Miners who had withdrawn charged the international union with being communist-dominated.

On the eve of the election, which was recently held, Maurice Travis, secretary-treasurer of the mine, mill & smelter workers, was injured in a fight at a radio station in nearby Bessemer.

U. S. TIN PLANT: America's only privately-owned tin smelting plant is being built for Vulcan Detinning Co. at Sewaren, N. J., by Wigton-Abbott Corp., Plainfield, N. J. The new smelter, which will involve an estimated cost of \$400,000, will utilize a newly-developed process for extraction of the metal from low-grade Bolivian concentrates.



Stamping Industry Is Seen Facing a Period of Severe Testing

Cleveland

... Stormy petrel of the small consumers' clamor for postwar steel tonnage, the stamping industry, today is fighting a 40 pct drop in new business and has more steel than it can use.

This relatively sudden and sweeping change in the stamping industry got impetus about 6 months ago from the decline in the home appliance and truck business and the speed of the downward trend has been accelerating as an unhappy parallel to the increasing availability of steel.

Thus, the state of the stamping industry as it enters the second quarter of a year in which it will very likely have to be satisfied with a smaller margin of profit than 1948 is this:

(1) New orders are off about 40 pct on the average. In plants where the contracts were not diversified, orders are off as much as 60 pct.

(2) Backlogs have been disappearing fast. Plants have been getting cancellations, hold-ups and backups where customers spread out a 3 months' schedule, for example, over 5 or 6 months.

(3) Severe price testing has been under way for the past 90 days and is a force difficult to resist in a complete buyers' market. Stampers are trying to hold off until action is taken on the price of steel.

But stamping buyers are also waiting for a steel price cut which could be a delaying factor in a possible pick-up in the stamping business. Some automotive parts suppliers are making voluntary price reductions and are hammering their subcontractors, including stampers, down accordingly.

Stampers are trying to get their costs down by cutting shifts and hours. Many stamping plants have laid off as high as 30 pct of shop personnel.

Some captive plants, in an effort to get their costs down, are reverting to the prewar practice of letting out the tough jobs and

Some Stampers See Leveling Off by Mid-Year on A Moderate Plane

By BILL LLOYD

Cleveland Regional Editor

keeping the simple work that takes a lot of steel.

In general, liquidation of inventory is not the reason stampers are buying very little steel at present. Many stamping plants carry a standard inventory about 20 pct less, tonnage-wise, than a month's average production. These plants order steel when they get orders. In some cases, stamping plants with an end product of their own had inventory, but most stampers were unable to accumulate inventory before the bottom fell out.

Biggest problem of the independent job stamper in the present market is new business, or volume. What the job stamper wants, but is having a rough time finding, are long production runs which keep die-setting costs and material handling costs down and make money.

If a stamper is diversified, that is with contracts for stampings from several different industries, particularly automotive, he is getting by. But the stamper with all his eggs in the home appliance or truck industry basket has a real problem in most cases.

With demand for steel kitchens, ranges, refrigerators, metal lath, galvanized ware, furnaces, range boilers and tanks, eaves trough, conductor pipe, milk and ice cream cans and a good many other products substantially off, the average job stamper is hard put to find a way to turn.

Yet some stampers predict they will be back in a "normal" business by July 1, with a volume of business lower than the last 3 years, but higher than prewar.

While there are no glaring signs

of a resurgence in the stamping business at present, the industry is counting on government buying programs, which they know will be slow to reach them, and a general pick-up, which will bring back home appliances, trucks and other users of stampings now in the doldrums.

In the interim, the average job stamper is going through a period that is testing his ingenuity and trying his soul. This period began in the last 4 months of 1948 when the business first began to show signs of wear and tear and new orders began to fall below shipments.

An IRON AGE survey on stampings in the metalworking industry released in 1947 shows that of 462 plants, 73 pct use stampings and that the influencing factors in the awarding of stamping contracts, in the order of their importance, was best delivery, reputation of supplier, geographic proximity, expectation of future service, and reciprocity.

Historically, the job stamping business has been pretty thin. Many job stampers before the war bought seconds and mill rejects wherever and whenever they could get them and passed the saving along to the stamping buyer. In some cases, seconds couldn't be used, but generally the average job stamper was a big buyer of seconds.

With the cost structure of many products pricing them out of the market, manufacturers today know, if they did not before the war, that stamping is still the cheapest way of fabricating metal.

New Furnace for S. Africa

Pittsburgh

... Rust Furnace Co. has completed design of a billet heating furnace for South African Iron & Steel Industrial Corp., Ltd., at Pretoria, South Africa, and is now shipping materials for installation. The furnace, a double-zone fired heater, will have a capacity of 50 tons per hr. It will serve a new rod mill of the South African plant.

Construction Steel . . .

• • • The estimated bookings of fabricated structural steel for the month of March, according to reports received by the American Institute of Steel Construction, Inc., totaled 147,637 tons, some 370 pct greater than February and an increase of 14 pct over January bookings. The three months' total, however, is down some 23 pct from the bookings of the corresponding months of 1948.

March shipments for the industry are estimated at 178,256 tons, also a gain over January and February of this year, while the three months' total is 5 pct greater than for the same months of last year.

The backlog (tonnage available for fabrication) within the next four months only, stands at the end of March at 582,466 tons, as compared with 596,886 tons at the same point in 1948.

	Estimated Total Tonnage for the Entire Industry		
	1949	1948	1936-1940 Avg.
Contracts closed			
Jan.	129,103*	160,634	107,578
Feb.	107,324*	130,119	96,280
Mar.	147,637	213,123	124,558
Totals	384,064	503,876	328,416
Shipments			
Jan.	152,110*	146,363	92,578
Feb.	146,341*	141,556	88,626
Mar.	178,256	167,929	115,031
Totals	476,707	454,948	296,235
Tonnage available for fabrication within the next 4 months	582,466	596,886	313,635

• • • Fabricated steel awards this week included the following:

- 1500 Tons, Chicago, warehouse for Carson, Pirie, Scott & Co., to Bethlehem Steel Corp., Bethlehem.
- 750 Tons, Bellevue, Nebr., Loup River power station No. 3, to Paxton Vierling Steel Co., Omaha.
- 470 Tons, Lincoln, Nebr., K Street power station, to Paxton Vierling Steel Co., Omaha.
- 350 Tons, Bryn Athyn, Pa., Bemad Hall, to Frank M. Weaver Co., Lansdale, Pa.
- 315 Tons, Louisville, Mont., Penstocks U. S. Bureau of Reclamation Specification 2577, to Pacific Coast Engrg. Co., Alameda, Calif.
- 200 Tons, Chicago, St. Angela Church, to J. T. Ryerson & Son, Chicago.
- 140 Tons, Philadelphia, Delaware County Hospital, to Easton Steel Structures, Inc., Easton, Pa.
- 100 Tons, New York, N. Y. Store building East Side of River Ave. & 161 st. to Grand Iron Works, N. Y.
- 100 Tons, Peoria, Ill. repair shop for Caterpillar Tractor Co., to J. T. Ryerson & Son, Chicago.

• • • Fabricated steel inquiries this week included the following:

- 15,000 Tons, Philadelphia, Penrose Ave. bridge, Bethlehem Steel Co., Low.
- 9000 Tons, Calcasieu, La., Bridge for State Highway Dept. Virginia Bridge Co. low bidder.
- 2000 Tons, Sandia, N. Mex., laboratory building for the Atomic Energy Commission.
- 850 Tons, Neenah, Wis., warehouse for Kimberly Clark Lumber Co.
- 800 Tons, Chanute, Kan., State Highway bridge.
- 695 Tons, El Monte, Calif., new bridge across San Gabriel River on Valley Blvd., Calif. Div. of Highways, Los Angeles, bids to May 26.
- 400 Tons, Lebanon-Lancaster Counties, Pa., Pennsylvania Turnpike, Section 24A,

Harrison Construction Co., Pittsburgh, low.

- 220 Tons, Vermillion Co., Ill., State Highway bridge Section 34-Z-1-SF.
- 220 Tons, Montgomery Co., Ill., State Highway bridge Section 117-1SF.
- 175 Tons, White Co., Ill., State Highway bridge Section 1F.

• • • Reinforcing bar awards this week included the following:

- 1315 Tons, State of Ohio, 20 television towers for American Telephone & Telegraph Co., through National Concrete & Fireproofing Co. of Cleveland, to U. S. Steel Supply Co., Chicago.
- 500 Tons, Grand Island, Nebr., 7 television towers for the Mississippi River and Des Moines area for American Telephone & Telegraph Co., through Geer & Maurer Co., Grand Island, Nebr. to Laclede Steel Co., St. Louis.
- 200 Tons, Des Moines, storage building for the Farmers Dealers Assn. to Pittsburgh-Des Moines Steel Co., Des Moines.
- 110 Tons, West Chicago, Ill., building for Northwest Chemical Co. to J. T. Ryerson & Son Co., Chicago.

• • • Reinforcing bar inquiries this week included the following:

- 1035 Tons, Newman, Calif., Delta-Mendota Canal structures, Bureau of Reclamation, Tracy, Calif., Spec. 2649, bids to June 7.
- 675 Tons, Coulee Dam, Wash., structures, Winchester Wasteway, Bureau of Reclamation, Coulee Dam, Spec. 2648, bids to May 26.
- 325 Tons, El Monte, Calif., new bridge across San Gabriel River on Valley Blvd., Calif. Div. of Highways, Los Angeles, bids to May 26.
- 170 Tons, Benton Harbor, Mich., Mercy Hospital, Pearson Construction Co., Benton Harbor, Mich., low bidder.

In last week's Plate Award the 200 Tons, welded pipe for the Milwaukee Gas Light Co., awarded to A. O. Smith should read 4000 ft. of welded pipe instead of 400.

Triple Convention

(CONTINUED FROM PAGE 141)

from booth to booth contacting their various suppliers. A business atmosphere pervaded the entire convention and company presidents were frequently in attendance at booths.

The booth idea was tried out for the first time last year at Atlantic City and was equally successful this time. Walter H. Gebhardt, vice-president, Henry Diss-ton & Sons, and previous president of the Manufacturers' Assn., reported on the success of the program, mentioning that those who were against the idea last year are now fully convinced of the practicability of the conference idea.

A reason for the increased attendance was the opportunity of more Midwest manufacturers and distributors to attend. Industries represented included rubber, steel, machinery, tools, pumps, heavy hardware, abrasives and other industrial lines.

50 YEARS AGO

THE IRON AGE, May 4, 1899

• "The Pittsburgh Steel Foundry Co. have been granted a charter of incorporation with a capital stock of \$250,000. The organization of this concern was referred to in the columns of THE IRON AGE some time since."

• "Advices from Cape Breton, Canada, announce the discovery of an immense deposit of magnetic iron at George's River Mountain a few miles from North Sydney. The deposit is at the western end of Long Island, on the Little Bras d'Or."

• "By a law recently passed commercial travelers pursuing their avocation in Russia, whether native or foreign, are required to provide themselves with a license at the cost of 50

rubles, and to obtain at a further cost of 500 rubles a trade license for the firm or company whom they represent."

• "A London cable dispatch states that J. P. Holland, inventor of the Holland submarine boat, failed in his negotiations for the sale of his invention to the British Admiralty. It is understood that it is now being offered to Russia."

• "The Supreme Court of the U. S. has decided that the title to the lands along the Potomac River in the city of Washington are vested in the U. S., thereby settling the various claims that have been pending before the courts for fully half a century."

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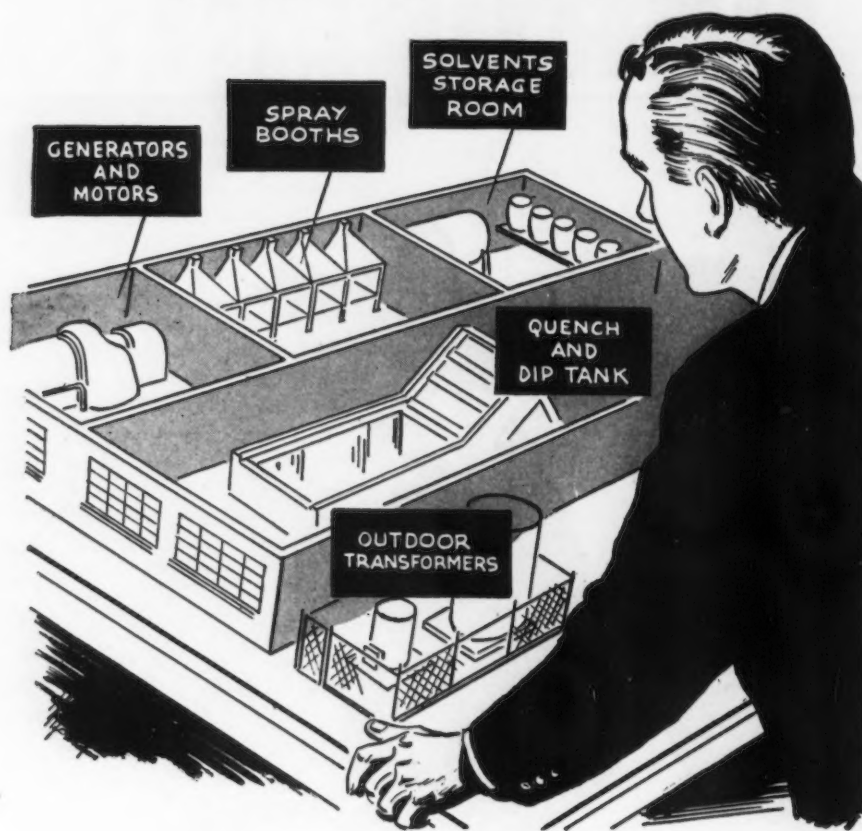
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damage. From single locations to complete plant systems, Cardox assures all the CO₂ needed to put out the fire.

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Submarginal Miners Given Consideration In Sponsored Measure

Washington

• • • Congress has been handed a warm potato by the House Judiciary committee which has approved and recommended enactment of a bill sponsored by Rep. Clair Engle, D., of Calif. In effect, it requires the government to keep faith with industry.

The point to be settled is whether the government should make reimbursement for losses incurred in wartime through purchase of equipment in expectation of orders which never materialized.

Entitled an "Act to Amend the Contract Settlement Act," the measure approves "relief" for wartime operators who equipped and reopened submarginal mines. The government issued equipment priorities and similar aid; later, it curtailed procurement, leaving the operators with no orders for high-cost materials.

The measure goes so far as to cover losses of operators who did not hold formal contracts but went ahead in preparation for production in the expectation that the government would need the materials mined.

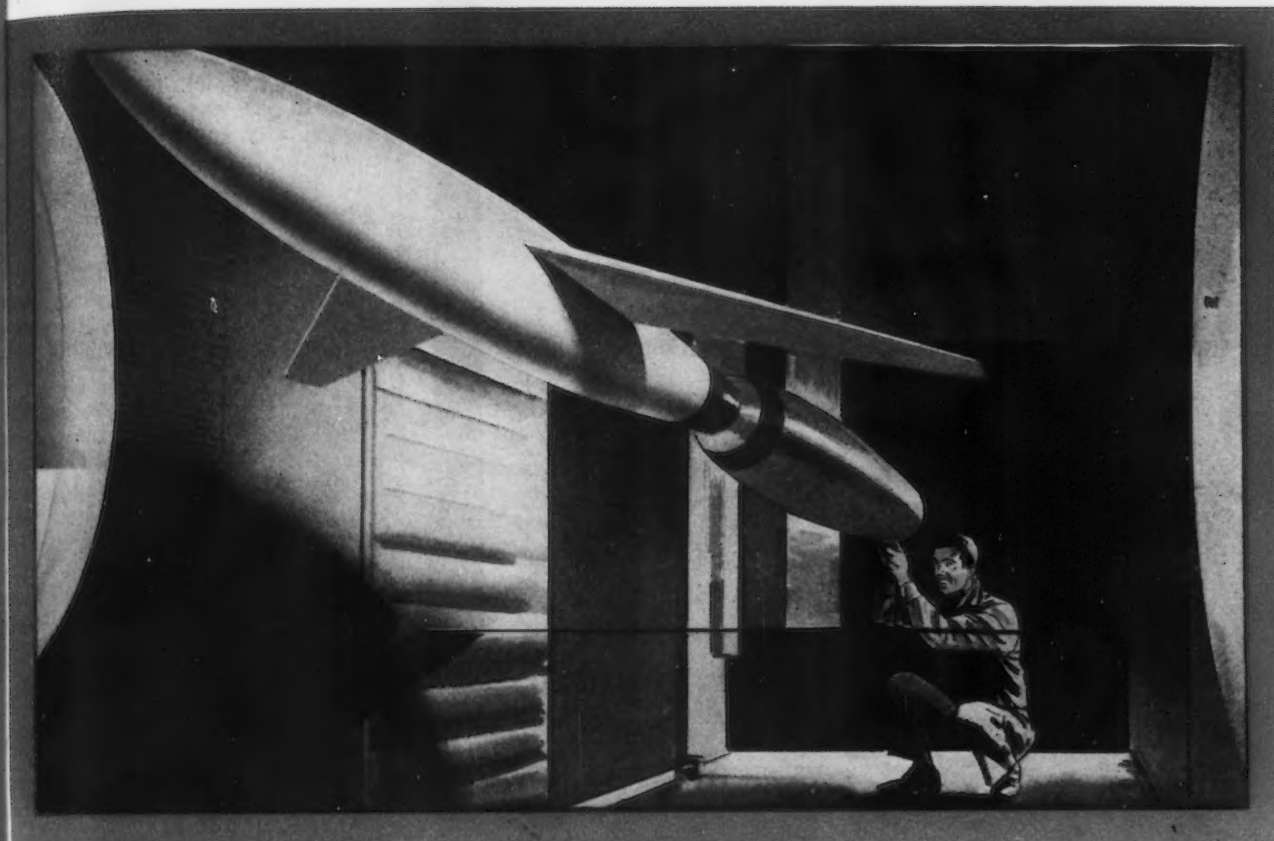
In approving the bill, the House group took the stand that perhaps the government is not legally committed to bailing out the operators but it is morally obliged to do so. Most of them, the committee says, went into the venture with the well-based expectation that the government would take its high-cost production.

No estimate is available as to what "reasonable" reimbursement would amount to. Similar action after World War I cost the government about \$3 million.

The committee holds that if the government refuses to recognize the claims or accords "niggardly" treatment, then the submarginal miners could not be blamed if they hesitated in "re-engaging in the same activities in the event they are again called upon to do so" in the event of future industrialization.

A case in point is that of manganese production. The availability of high grade foreign ores resulted

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Putting Air to Work!

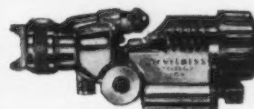
Air will be put to work in this new NACA supersonic wind tunnel in an unusually interesting way. Jet and rocket engines will be tested in this chamber and through it a "gale" of sub-zero rarified air will be blown at twice the speed of sound.

Of equal interest also are the many unusual ways DeVilbiss puts air to productive work on countless jobs... some commonplace... many spectacular. Consider for example the comprehensive line of specialized DeVilbiss spray guns that apply coating materials of every description.

DeVilbiss Flock Guns spray fibers to rival the textures of suede, velour and velvet. DeVilbiss Veiling Guns



spin "cocoon-like" shrouds—over large objects of all kinds preliminary to moisture proof packing. DeVilbiss Automatic Guns



apply remarkably uniform finishes at amazing speed at a fraction of normal costs. And these are just a few of many impressive examples.

Regardless of what your product finishing problem may be, it will pay you to consult a DeVilbiss Engineer. He'll recommend equipment that will increase production and lower costs, whether your specific requirements call for a spray gun or a completely engineered finishing system.

THE DEVILBISS COMPANY • Toledo 1, Ohio

Canadian Plant: WINDSOR, ONTARIO

DEVILBISS

means Quality in all four..

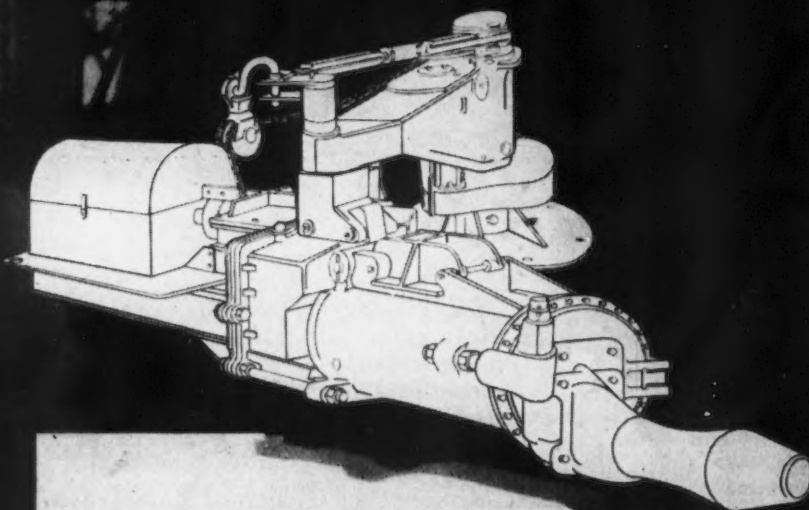


SPRAY EQUIPMENT
EXHAUST SYSTEMS
AIR COMPRESSORS
HOSE & CONNECTIONS

THE IRON AGE, May 5, 1949—151

UNIVERSITY OF MICHIGAN LIBRARIES

fast *
sure *
safe *



* three ways to describe BROSIUS clay guns in operation at the blast furnace tap hole. For 31 years BROSIUS engineers have diligently applied their experience to the design and production of efficient low-cost guns. That's why so many BROSIUS guns have been working so long—so well. Available electric, electric-hydraulic, steam—pedestal or column mounted. For fast, sure, safe guns—please write to us.



Edgar E.
BROSIUS
Company Inc.

SHARPSBURG • PITTSBURGH 15, PA.

NEWS OF INDUSTRY

in an upgrading of specifications later in the war. Small operators, particularly, could not afford equipment for the higher type refining.

The House Public Lands Committee, headed by Rep. Engle, is disturbed over mineral shortages in the United States and have several measures under consideration providing various plans for long-range development—including subsidization.

Committee members are particularly concerned over manganese production. A substantial portion of American consumption comes from abroad—nearly 40 pct of imports for consumption comes from Russia. Recently, the USSR has considerably reduced the tonnage for import by the U. S. and rumors persist that the Soviet supply might be cut off entirely.

Intensifies Sales Campaign

Willow Run

• • • Kaiser-Frazer officials have launched a selling campaign and sales training program that is destined to become much the biggest activity of this kind thus far attempted.

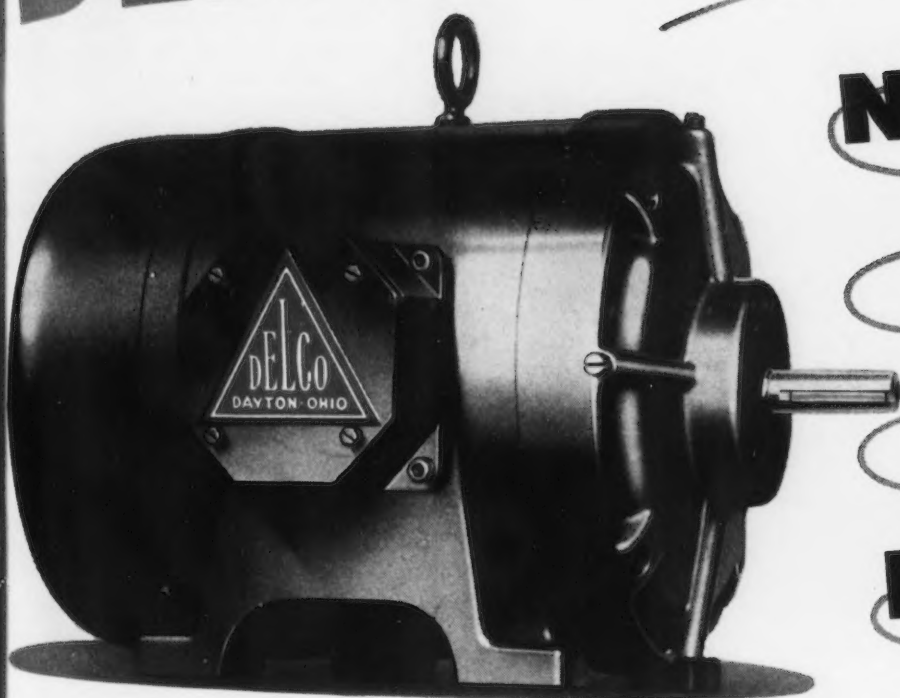
In response to its recent announcement slashing prices of its models from \$198 to \$333, company officials have announced that sales by dealers to customers during the first 10 days of April showed an increase of 89 pct over the corresponding period in March.

At the present time, K-F is producing 330 cars per day, of which approximately 70 pct are the new utility models which "double" as a station wagon. Dealer sampling of these models will not be completed until the end of the month, according to a company spokesman.

Meanwhile, K-F has inaugurated a sales training program in a new building which was especially designed for sales training. Approximately 100 dealers and distributors and their salesmen are being brought to Willow Run for a week-long period of intensive training.

The company has indicated that approximately 10,000 persons in the organization are eligible to attend. It is expected the course will be continued for an indefinite period.

DELCO MOTORS



**NEVER
LET
YOU
DOWN**

Delco polyphase motors, totally enclosed and fan cooled, are produced in sizes from fractional ratings to 75 h.p.



From both an electrical and a mechanical standpoint, Delco industrial motors are designed and built for continuous *peak performance*—there's no down-time with a Delco. The truth of this statement will be apparent to anyone making a unit-by-unit examination of a Delco and discovering among its components such engineering advancements as a double-shell, corrosive-resistant, cast-iron frame; Delcote-insulated coils; unit-cast rotor and shaft, dynamically balanced; positioned bearings; simplified lubrication; water-tight conduit box. It is *plus values* such as these which help to explain why Delco motors stand up to their jobs—why they operate at less cost for a longer period of service. You can depend on Delco for motors that are **RIGHT** for your individual jobs.

For complete information on Delco motors write Delco Products, Dayton, Ohio, or call our nearest sales office.

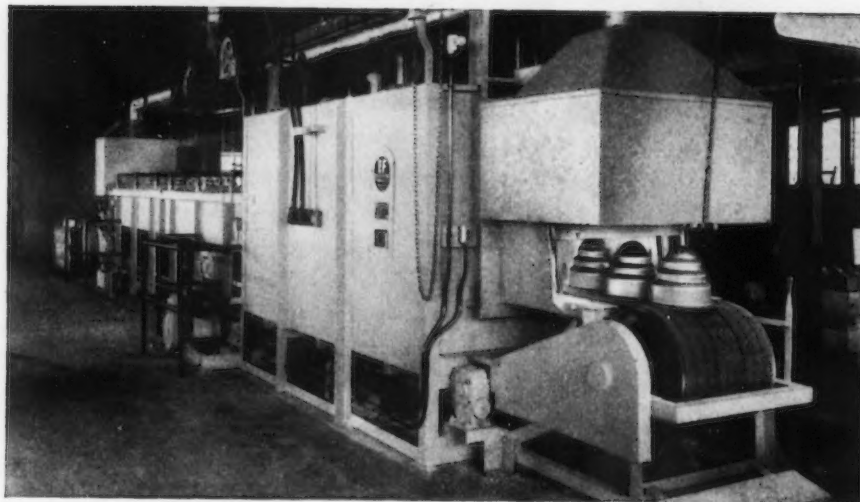
DELCO MOTORS

DELCO PRODUCTS, DIVISION OF GENERAL MOTORS CORPORATION

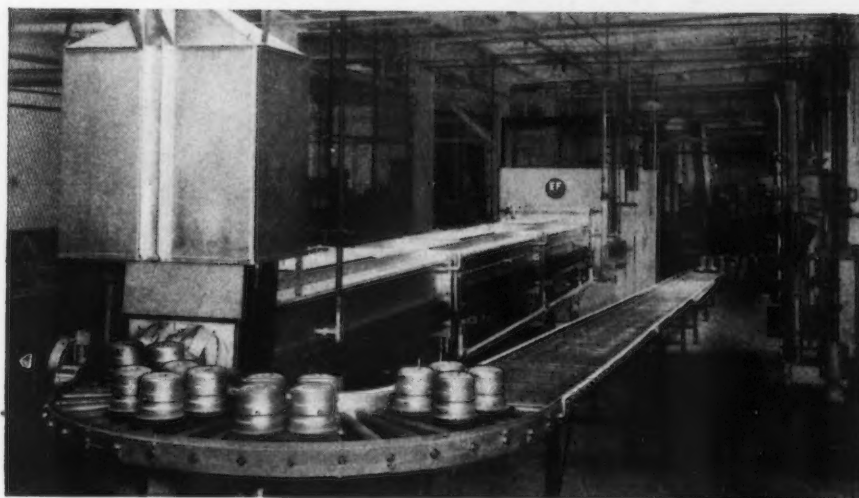
SALES OFFICES: CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HARTFORD, CONN.

THE IRON AGE, May 5, 1949—153

EF FURNACE BRAZING



CUTS MATERIAL, TOOLING



AND FINISHING COSTS

● When it's costly to make a part in one piece—make it from several pieces, brazed together. Brazing can save from 50 to 80% in material. The brazed piece will probably weigh less—be stronger—withstand shock and vibration better, and wear longer. Brazing enables you to avoid costly die and tooling charges,—and since the finished pieces are discharged from the furnace uniformly bright, smooth and free from scale,—plating, lacquering, painting or other finishing costs are greatly reduced. Investigate the advantages of EF furnace brazing. Fully descriptive literature, complete with design suggestions, sent promptly. Write today.



THE ELECTRIC FURNACE CO.

GAS FIRED, OIL FIRED AND ELECTRIC FURNACES
FOR ANY PROCESS, PRODUCT OR PRODUCTION

Salem - Ohio

154—THE IRON AGE, May 5, 1949

NEWS OF INDUSTRY

Commerce Dept. Cuts Third Quarter Export Quota for Tinplate

Washington

••• An export quota of 100,000 net tons of tinplate, to be supported by priority ratings and shipped during the third quarter of 1949, has been established, following consultation with the Tinplate Industry Advisory Committee, the Dept. of Commerce recently announced. The rated quota set for the third quarter is 13,000 tons below that for the second quarter. Officials said that the cut represents the Department's policy of reducing all mandatory programs as rapidly as conditions permit.

Approved foreign orders for tinplate, up to the 100,000-ton limit, will be supported by ratings (CXS) and must be accepted by tin mills. Rated export orders for tinplate are licensed only for preservation of perishable foodstuffs for consumption abroad.

Additional quantities of tinplate, up to 45,000 tons, may be licensed but will not be rated, for export during the third quarter of this year. Of this total, at least 12,500 tons must consist of 0.50 lb electrolytic plate and special coated manufacturing ternes for uses permitted under Allocation Order M-43, including use abroad by American oil companies.

The remainder of the unrated quota may be licensed for export at the discretion of the Office of International Trade, for preservation of perishable foodstuffs for consumption abroad, and for packaging foods to be imported into the United States. Acceptance of licensed but unrated orders is discretionary with tin mills.

Officials said that the unrated quota of 45,000 tons represents a 28,000 ton increase over the 17,000 tons authorized but not rated for export during the previous 3 months. They explained that the increase is to permit tin mills to seek export markets, if the current trend toward lighter domestic demand continues.

It also was explained that assignment of priority ratings to export 100,000 tons of tinplate

20th CENTURY TREASURE-TROVE



Instead of digging for gold on far-away islands, industrial executives of the 20th Century can find fabulous hidden wealth right in their own production lines.

For many a manufacturer throughout the modern world, Clearing presses have uncovered a buried treasure of reduced production costs. Precision and rigidity of Clearing construction assure maximum productivity. Let us show you how Clearing presses can help you to greater manufacturing profits.

CLEARING MACHINE CORPORATION
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CLEARING PRESSES

THE WAY TO EFFICIENT MASS PRODUCTION



THE IRON AGE, May 5, 1949—155

\$500 prize contest

for New Applications of
MicroRold Stainless Steel
in gauges .015 and thinner



1ST PRIZE \$250
2ND PRIZE 100
10 PRIZES 15
TOTAL \$500

Washington Steel Corporation announces a contest with \$500.00 in prizes for suggestions for new uses or applications of MicroRold stainless steel sheet and strip in gauges of .015 or thinner. Entries will be judged on the basis of economic practicability and originality by a board of three impartial judges selected by the corporation; the decisions of the board will be final. There is no limit on the number of suggestions that each entrant may submit.

By submitting an entry each contestant grants to Washington Steel Corporation the non-exclusive right to promote the manufacture and sale of any article or idea contained in the entry. All entries must be submitted on your company letterhead.

The contest closes at midnight, June 30, 1949, and all entries must be postmarked on or before that time. Winners will be notified by mail on or before July 31, 1949. Duplicate prizes will be awarded in case of ties.

Employees of Washington Steel Corporation and its advertising agency and members of their families are ineligible. The contest is subject to all applicable federal, state and local laws.

Mail entries to:

Contest Headquarters,
Washington Steel Corporation,
Washington, Pennsylvania.



WASHINGTON STEEL CORPORATION
119 Woodland Avenue Washington, Pennsylvania

must necessarily be provisional at this time, since it is dependent on extension by Congress of the Second Decontrol Act of 1947, which expires June 30.

The OIT has also announced the country-by-country allocations of 124,000 tons (100,000 rated, 24,000 unrated) of the total overall export quota of 145,000 tons for the third quarter. The remaining 21,000 tons of unrated tinplate approved for third-quarter licensing is to be used for packaging food-stuffs for import into the United States and for other uses permitted by Order M-43, including use abroad by American petroleum companies. The 124,000 tons for export is for approved foreign orders.

Order Backlog for S-G Drops to 10-Year Low

Buffalo

• • • The order backlog of Symington-Gould Corp., Depew, N. Y., is at the lowest level in 10 years, a company spokesman said, due to a steady decline in demand for freight car and rail locomotive castings, chief product of the Depew plant.

At the same time, it was disclosed that prices of several of the company's principal products have been reduced, but the spokesman declined to reveal either the products affected or the extent of the reductions.

New freight car buying programs are almost nonexistent at this time, he said.

"It is impossible to predict the rate of operations for the balance of the year," he added. At present, the plant is on a 5-day week.

A spokesman for the Pratt & Letchworth Co., Inc., of Buffalo, another leading producer of steel castings, reported that "we have noted railroad business has quieted down considerably."

"However, our backlog of orders is sufficient to keep our plant operating at the present 5-day a week level for 3 months," he added.

P&L is making automotive truck castings and also castings for Army tanks in addition to railroad equipment products.

Murray Corporation of America!

Selection of the right press for the specific job is made only after careful study and recommendations by the Bliss engineering staff, according to Murray's pressroom superintendent. It is this ever-expanding fund of knowledge, over 90 years in the making, that has made Bliss the first choice of stampers the world over. "Ranking next in importance," he says, "is Bliss' prompt service when parts have to be replaced or the presses serviced."

It's another reason why the pressed-metal industry knows that Bliss on a Press Is More Than a Name—It's a Guarantee!...why it pays you to put your press problem up to Bliss.

E. W. BLISS COMPANY General Offices: Toledo 7, Ohio

Mechanical and Hydraulic Presses, Rolling Mills, Container Machinery

WORKS AT: Toledo, Cleveland, Salem, Ohio; Hastings, Mich.; Derby, England; St. Ouen sur Seine, France. SALES OFFICES AT: Detroit, Mich.; New York, Rochester, N. Y.; Cleveland, Toledo, Salem, Ohio; Philadelphia, Pittsburgh, Pa.; Chicago, Ill.; New Haven, Conn.; Windsor, Ont.



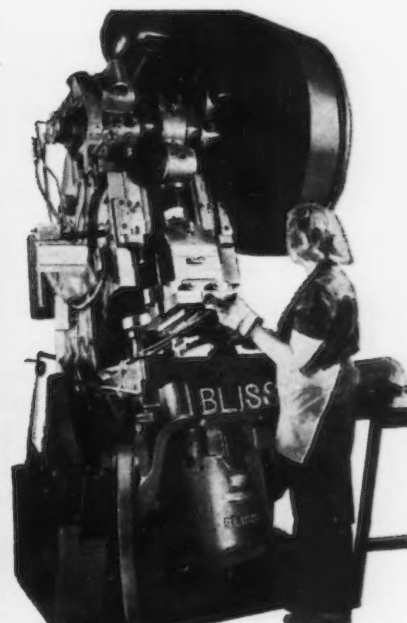
Trimming the turret top in a 4-point enclosed single action press with 160" wide bed. Press has 650 tons capacity. Operation is by electric push-button.



A Bliss adjustable bed press of 40 tons capacity is shown being used for general punch press work.



Deep pillars are drawn in Bliss No. 795½ Toggle Press. "The finest drawing press on the market," according to the pressroom superintendent.

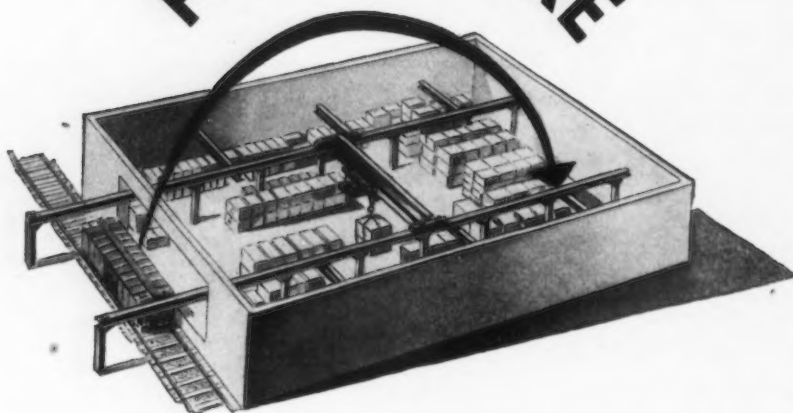


Blanking salvaged scrap steel in No. 21½ Inclinable Press. Die cushion in bed permits shallow drawing.

BLISS BUILDS MORE TYPES AND SIZES OF PRESSES
THAN ANY OTHER COMPANY IN THE WORLD



PUT IT THERE



Faster, Cheaper and With Greater Safety

THROUGH THE AIR

A quick hook-on to a pallet, basket or standard sling and the load is whisked away—cutting across occupied floor space—straight to the spot where you want it.

It's smart, and thrifty to use "through the air" transportation as widely as you can in plants and warehouses. Compare this method for overall cost, efficiency, maintenance and safety before you allow other means of transfer to overlap the service that is best performed by cranes and hoists!

Let the Shepard Niles specialist break your problem down for you—he's experienced, skillful and he has the maximum number of sizes and types in his product line.

SHEPARD NILES
CRANE AND HOIST CORPORATION

Makes and sells all three lifting tools for airborne shop loads.



356 SCHUYLER AVENUE • MONTAUR FALLS, N. Y.

160—THE IRON AGE, May 5, 1949

NEWS OF INDUSTRY

Record Steel Output Continues; Balancing Of Supply and Demand

New York

• • • The record production of steel in the first quarter of this year was equal to annual output of over 1300 pounds of raw steel for each person in the United States, an increase of almost 8 pct over 1948 per capita output and more than 50 pct over a decade ago, according to American Iron & Steel Institute.

As announced previously by the Institute, the new monthly record output of 8,388,965 net tons of ingots and steel for castings in March brought the total for the first 3 months of 1949 to 24,053,181 tons, 9 pct higher than a year earlier, or more than half the average annual output of the 1920's.

Continued production at the March rate, averaging nearly 1,894,000 tons a week, would make an annual total of over 98,000,000 tons of steel, an increase of 10,000,000 tons over 1948 output.

Production is breaking records not only in total tonnage, but in relation to growing population, the Institute said, and the effect of this greatest steel production cycle is being felt everywhere in supplies as the factories of the country are rapidly balancing supply and demand for their products.

The Institute pointed out the country has been getting the benefits from steel's large scale expansion and improvement programs not only in the record first quarter, but through the entire past year. In the latest 12 months more steel was produced than ever before in a similar length of time. The total of more than 90,000,000 tons for the 12 months, ending Mar. 31 was 1,500,000 tons greater than in the calendar year of 1948.

Shipments of finished steel exceeded 18,000,000 tons in the first 3 months of 1949, equal to more than half of total 1939 shipments.

Steel companies increased their annual ingot capacity by about 1,800,000 tons in 1948 and plan to add nearly 2,200,000 tons this year. By the end of 1950 these programs call for capacity of almost 99,000,-



4-WINGED DRIVER CAN'T SLIP OUT
OF PHILLIPS TAPERED RECESS



FOR A SHARPER IMAGE OF TOP PROFITS IN TELEVISION PRODUCTION and SALES

... set-builders use

AMERICAN PHILLIPS SCREWS

SEE NEW PRODUCTION PROFITS: Assembly of costly television sets puts a prohibition on spoilage. That's why American Phillips Screws are used, to help keep sets rolling out to an eager market, and to keep rejections down. No delays or losses, then, and output hits the main channel with highest return per man-hour, *which means time-savings up to 50%!*

SEE NEW SALES-STIMULATION: Smoothly finished, unmarred cabinet work is the basis of television-set sales. And that's the way sets come from an assembly department using *American Phillips Screws*.

Does YOUR product have this double-feature of production-economy and sales promotion? Then write:

AMERICAN SCREW COMPANY, PROVIDENCE 1, RHODE ISLAND

Chicago 11: 589 E. Illinois St.

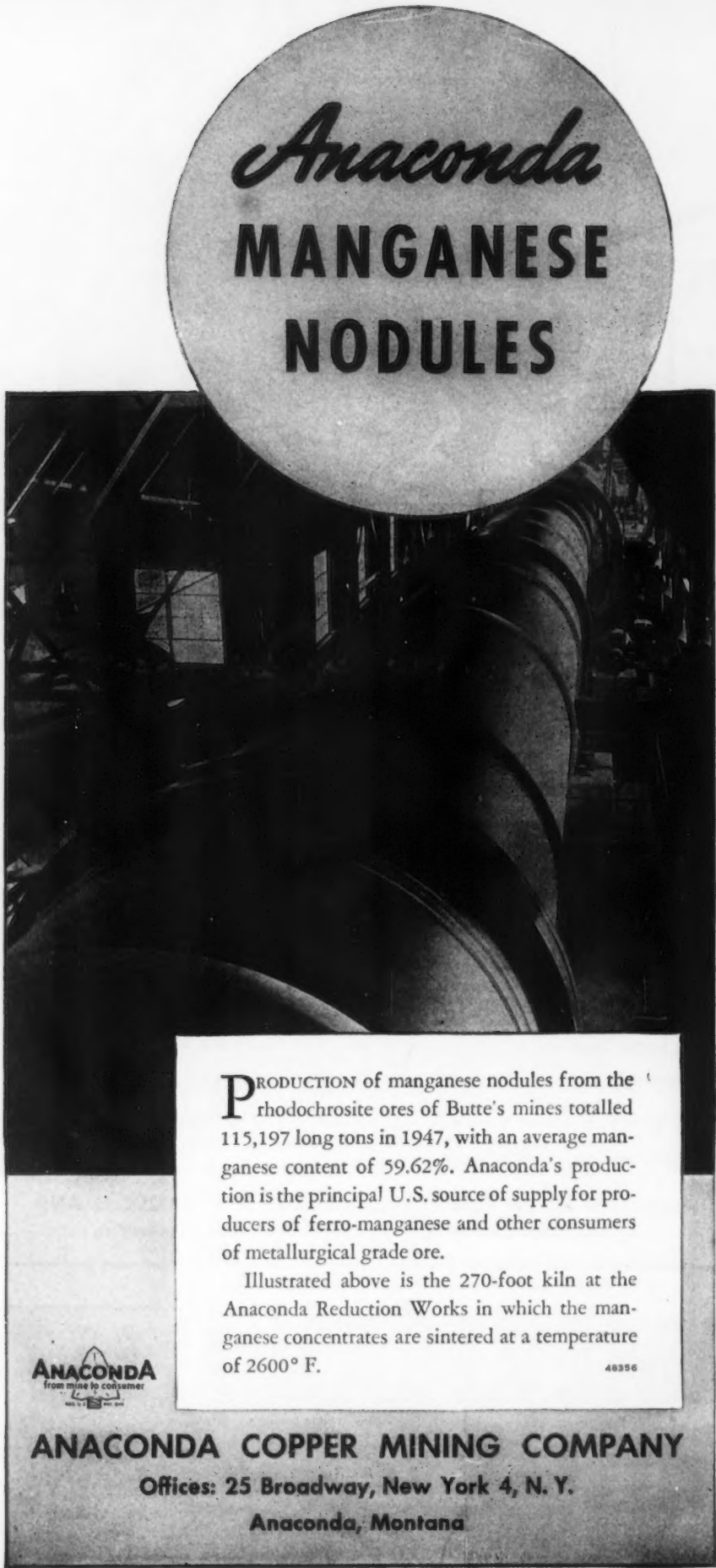
Detroit 2: 502 Stephenson Building

AMERICAN PHILLIPS *Screws*



ALL TYPES

ALL METALS: Steel, Brass, Bronze, Stainless Steel, Aluminum, Monel, Everdur (silicon bronze)



Anaconda

MANGANESE NODULES

PRODUCTION of manganese nodules from the rhodochrosite ores of Butte's mines totalled 115,197 long tons in 1947, with an average manganese content of 59.62%. Anaconda's production is the principal U.S. source of supply for producers of ferro-manganese and other consumers of metallurgical grade ore.

Illustrated above is the 270-foot kiln at the Anaconda Reduction Works in which the manganese concentrates are sintered at a temperature of 2600° F.



48356

ANACONDA COPPER MINING COMPANY

Offices: 25 Broadway, New York 4, N. Y.

Anaconda, Montana

000 tons, an increase of more than 20,000,000 tons since 1937. Steel companies spent \$583 million in 1948 and expect to spend \$627 million in 1949 on new plants and equipment.

The rapidly rising trend in production of raw steel is indicated by the following figures: From average monthly production of 5,951,728 net tons in the final quarter of 1945, output rose to a monthly average of 7,074,506 tons during 1947 and advanced to 7,377,811 tons in 1948, followed by the sharp rise in the first quarter of 1948 to a monthly average of 8,017,727 tons.

Bureau Mines Reports On Brown Iron Ore

Washington

• • • Results of an investigation of a brown iron ore deposit in Massachusetts are described in a recent report released by the Bureau of Mines. This investigation—part of the bureau's mineral development program—was conducted under authority of the Strategic Materials Act of 1939 and later legislation.

During the winter of 1943-44, the bureau made geophysical surveys and drilled seven holes totaling 1793 ft on the once-productive Cheever brown iron ore deposit in Berkshire County, Mass. At College Park, Md., the bureau conducted concentration tests on three churn-drill samples containing 31.2 pct, 28.1 pct, and 22.2 pct iron, respectively. The most satisfactory test yielded concentrates containing 60 pct iron, with a recovery of 72.3 pct of the iron in the sample.

Work on this project was conducted by the Mining Division of the bureau, with valuable assistance from the Federal Geological Survey. The publication was prepared by Robert S. Sanford, bureau mining engineer, College Park, Md., and R. J. Burgess, former bureau mining engineer.

A copy of Report of Investigations 4423, "Investigation of Cheever Limonite Deposit, Berkshire County, Mass.," may be obtained free from the Bureau of Mines, 4800 Forbes St., Pittsburgh 13.

WHERE Full Carloads Turn Turtle AT A Finger-Touch

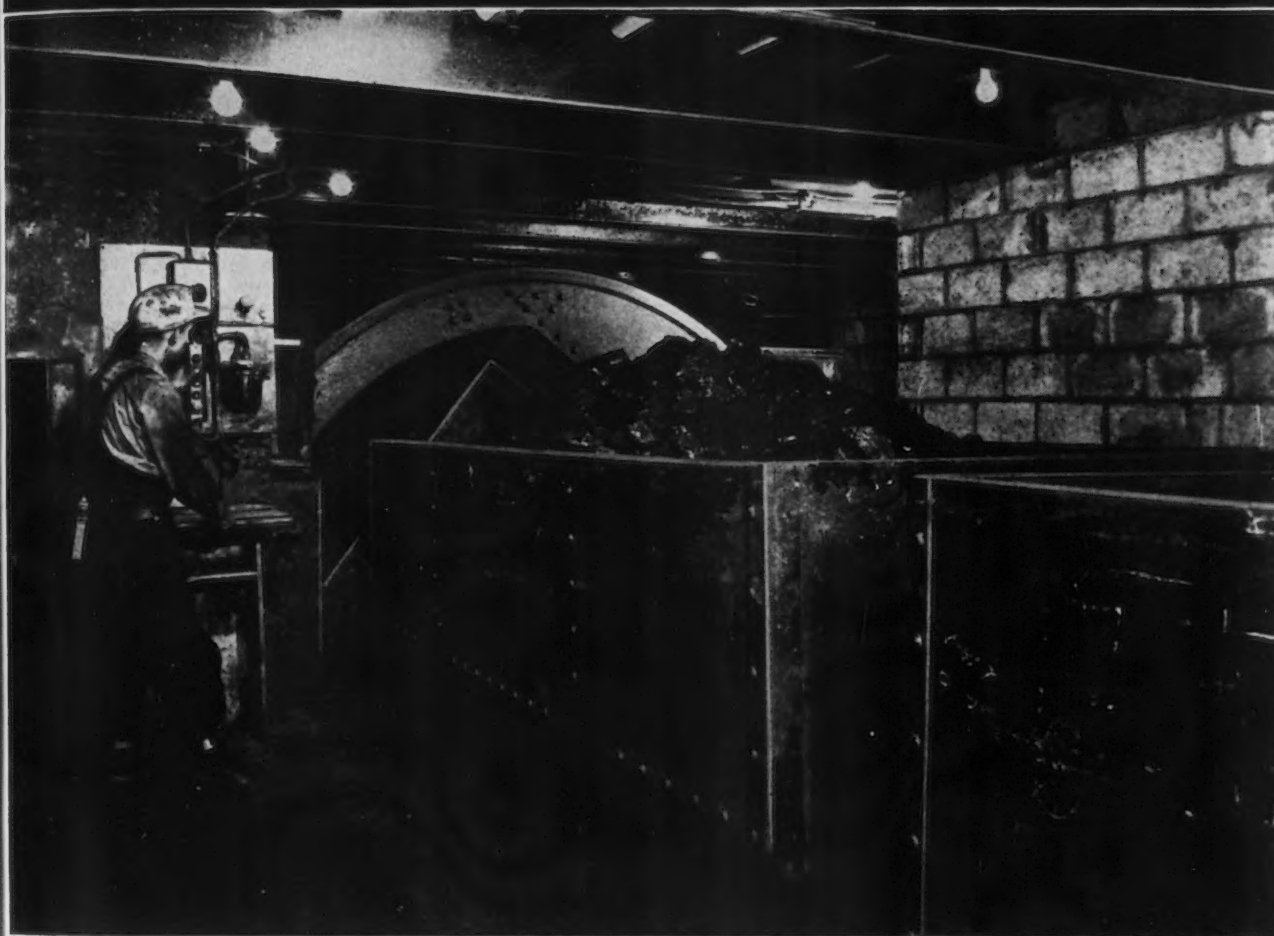


Photo taken in West Virginia coal fields by William Vandivert

This is the "ground floor" of a modern coal mine—the point from which coal, dug from seams deep in the earth, starts upward on its way to work for you. Here, as each car moves into the rotary dump shown, a touch of a button rolls it over, emptying the coal into an elevator-like hopper that speeds it to preparation plants above.

Such equipment as this, along with machines that cut, load, and convey coal, illustrate the tremendous investment progressive operators are making to provide all America with quality coal.

To provide this flood of coal consistently and safely, the industry is continuing its vast mechanization program. With an eye to coal's enlarging scope as a source of modern industrial energy, operators are currently investing more than a billion dollars for improvements and new facilities.

Living and working conditions of miners keep step with the industry's rapid development of faster, more efficient mining methods.

Today almost two-thirds—over 260,000—of the nation's bituminous coal miners either own their own homes, or rent from private landlords. The remaining one-third live in company-owned houses at rentals below those ordinarily available to workers in other industries.

Underground, too, progress in coal mining techniques is constantly producing safer working conditions. Powerful ventilating systems and electric lighting in car switching areas are among the many factors now making America's mines safer than ever before.

BITUMINOUS COAL
BITUMINOUS COAL INSTITUTE
 A DEPARTMENT OF NATIONAL COAL ASSOCIATION
 WASHINGTON, D. C.

BITUMINOUS COAL . . . LIGHTS THE WAY . . . FUELS THE FIRES . . . POWERS THE PROGRESS OF AMERICA

THE IRON AGE, May 5, 1949—163



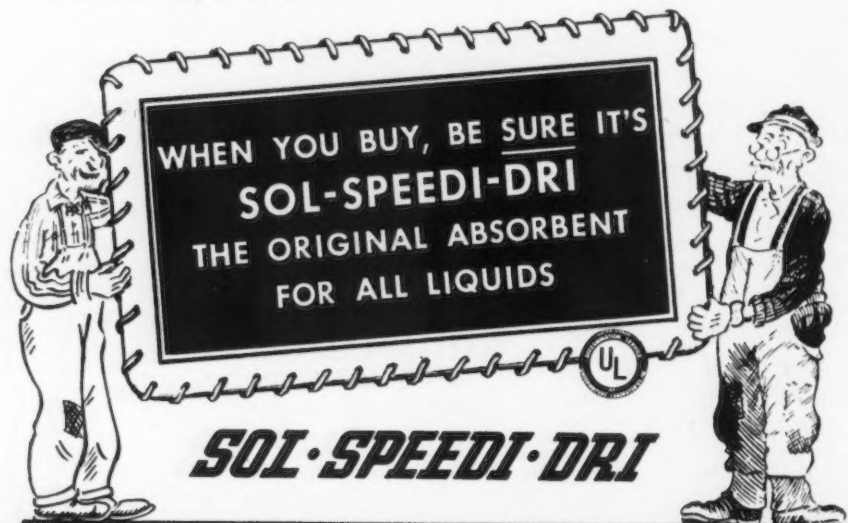
The New Improved Sol-Speedi-Dri Does More at Lower Cost!

Sol-Speedi-Dri—the new, improved Sol-Speedi-Dri—saves you money because you get more bulk, more coverage, more absorption, per pound. Sol-Speedi-Dri makes shop floors safe for walking, safe for working—cuts down on fire hazards—by soaking up all liquids, oil and grease included. Be safe, be sure, be economical, with the new improved Sol-Speedi-Dri.

★

Safety & Maintenance Co., Inc., 1 Wall Street, New York 5, N. Y.

Warehouse stocks maintained in principal cities of the United States and Canada.



U. S. Steel Engineer Describes Gains In Ruhr Coal Mining

Pittsburgh

••• Germany's Ruhr valley coal industry has been rehabilitated to more than three-fourths of its pre-war production figure of 125 million tons a year, R. R. Estill of U. S. Steel's H. C. Frick Coke Co. and former American chairman of the Allied Coal Commission in Germany, reports in a story published by the Engineers Society of Western Pennsylvania.

Mining capacity that was down to a potential of only 30,000 tons a day has been rebuilt to turn out well over 300,000 tons daily, according to Mr. Estill's report in the current issue of the engineering group's publication, "Chatter."

He headed a delegation of mining authorities who entered the rich Ruhr coal mining area in November 1947 to inject American know-how into the post-war rehabilitation job. The daily average output of the mines was about 225,000 tons when the Americans assumed their joint responsibility with the British. Prior to then, the mines were operated by a British delegation identified as the North German Coal Control, since the Ruhr was in the British zone of occupation.

"When the victorious American Army entered the Ruhr, the horrible effectiveness of total war was apparent on all sides," says Mr. Estill. "Production was practically at a standstill. Of the pre-war productive facilities, approximately 10 pct were entirely destroyed, and about 25 pct of the remaining plants were damaged. Only one of the 157 shafts (coal mining) was left intact. Of a total of 250,000 miners' housing units, 66,000 were completely wrecked and 130,000 more were damaged."

He points out that transportation facilities were disorganized and industrial activities were paralyzed and states that coal loading facilities were either completely ruined or inoperative due to the destruction of railroad yards, locomotives and cars.

When the occupation forces moved in, about 380,000 men were employed in the mines, including

STEEL
HEAT

SUCCESS
FOR YOUR IMPORTANT FORGINGS
IS ASSURED BY THIS BACKGROUND

This Forging...

is a rotor spindle for a steam turbine, subject to high
rotative stresses. National Forge is one of the few companies
with the experience to make such forgings with consistent success.

The problems in such work are many and varied. The analysis of steel selected for such forgings is such that quality must be assured. Steel must be forged under strict temperature controls, and after forging, the cooling process must be carefully guarded to avoid injury to the forging by thermal rupture. Heat treating also calls for careful adherence to prescribed treating cycle.

The inspection of such a forging must give complete assurance that all quality demands are met. This is not only true with respect to physical and dimensional requirements but also in the condition of the steel itself. To satisfy this demand such forgings are magnafluxed and usually have axial exploration holes bored for

internal inspection of the forging. In addition to these tests of quality the forging must be stable at its operating temperature. Therefore, heat indication tests at temperatures above the operating temperature are taken to assure that there will be no distortion of the forging when in actual use.

These successive steps of production and testing, starting at National Forge with our own manufacture of basic electric steel, are carried out by an organization that has developed the highest skill and commands the most complete facilities in every department.

May we have your inquiry—when you require forgings for exacting duty?



National Forge

AND ORDNANCE COMPANY

Irvine, Warren County, Pennsylvania

STEEL MAKERS ☆ FORGESMITHS
HEAT TREATERS ☆ MACHINISTS

newest complete data
on
STEEL ROLLING DOORS
for every need

KINNEAR
ROLLING DOORS

Complete information on smooth-working, space-saving doors for every need is at your fingertips in this new catalog. The easy upward action of Kinnear Rolling Doors brings time-saving efficiency to any doorway. The strong, all-metal, interlocking slat curtain opens completely out of the way, safe from damage . . . provides extra safety against fire, wind and intrusion when closed. Any size; motor or manual control. Full data on sectional-type upward acting doors is also included. If you haven't a Kinnear catalog for quick reference now, send for your free copy of this latest issue.

THE KINNEAR MANUFACTURING COMPANY

1760-80 Fields Ave.
Columbus 16, Ohio

Factories:

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San Francisco 24, Calif.

Offices and Agents in all principal cities

some 280,000 forced laborers who had been captured by the Germans. Releases of slave labor immediately reduced the available labor force to about 100,000 miners, mostly old men and physically handicapped younger men.

"It is against these conditions of chaos and destruction that the achievements of the Allied Coal Commission should be weighed," Mr. Estill says.

At the time his group assumed responsibility, more than 2 years after the war, the food situation had become acute, he points out, explaining that the average person was receiving only 1100 cal per day and the miners were getting 3800 cal, made possible by furnishing them one hot meal a day at the pit to supplement the sandwiches they took into the mines.

"The food scarcity," reports Mr. Estill, "caused absenteeism to run as high as 20 pct, through the men losing many shifts in searching for food, and through weakness from hunger.

"We put into operation several incentive schemes involving awards of scarce foods and clothing. These had a temporary beneficial effect, but immediately after the men had earned their incentive parcels the production would drop. This condition continued until currency reform became a reality on June 20, 1948. Immediately following this reform, foods and consumer goods, unseen since the end of the war, at once became available. With their new currency, the Deutsche Mark, the miners were able to purchase the commodities they so much needed.

"Since then, the Ruhr production has had a steady increase. This proved the contention of our American team—that given a currency that is stable and enough food to enable men to work without fear of starvation, they will produce the coal."

Mr. Estill predicts that the increased Ruhr coal production should hasten the economic recovery of Western Europe and lessen the monetary demands on the European Recovery Plan.

He states that "no coal whatsoever" is shipped from the Ruhr to Russia, to the Russian zone of Germany, or to any country behind the Iron Curtain.



Diesel exhaust elbows used on U. S. Navy submarines illustrate heat resistance of Gray Iron.

WHEN **HEAT** MEETS GRAY IRON

Gray Iron Characteristics Include:

- Castability
- Rigidity
- Low Notch Sensitivity
- Wear Resistance
- HEAT RESISTANCE**
- Corrosion Resistance
- Machinability
- Vibration Absorption
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Chicago Mayor Stops Construction Work At Douglas Airport

Chicago

• • • Construction at Douglas Airport, just outside of Park Ridge, Ill., was stopped last week when Mayor Kennelley, a businessman's businessman, asked, "Who is going to pay for running the airport when it's finished?"

City plans call for a \$75 million super air terminal. All work is now suspended until the major airlines make definite commitments as to when they intend to start using the field so the city can be certain of paying the cost of construction and the operations of this facility.

Arcol Midwest, large contractors, Chicago, are holding \$2,100,000 worth of construction contracts. Two such awards, for a total of 222 tons of structural steel, were reported in THE IRON AGE, Apr. 7, 1949, p. 150. Arcol is low bidder on another portion of the project involving 400 tons of concrete reinforcing bars.

The airlines have pointed out to the city officials that, even when completed, Douglas Airport isn't usable to them until new connecting highways are built. The joint airline committee feels Douglas is definitely needed in the future and their spokesman told THE IRON AGE they are willing to pay part of the maintenance and operation costs of the new port even though they use it only as a stand-by or emergency field.

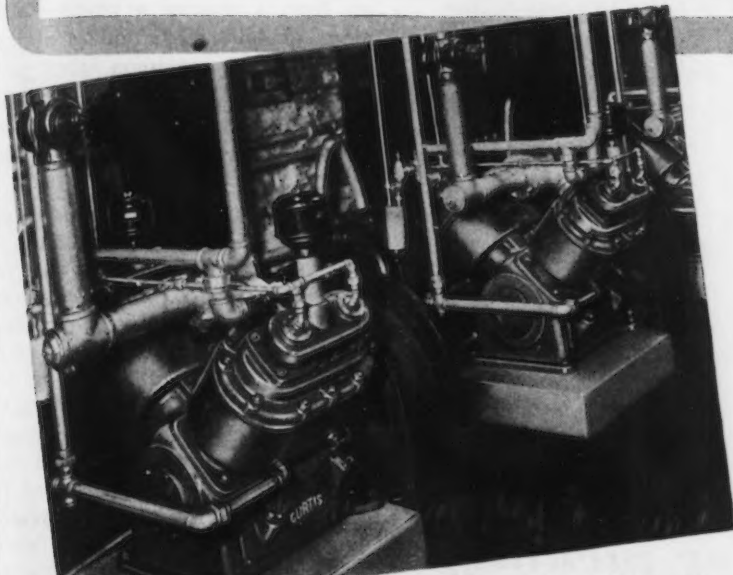
The city is now preparing figures to present to the airlines and it is felt some compromise will be reached. Until that time the contract for construction at the Douglas port will have to be held in abeyance.

College Adds Member

Worcester

• • • Everett F. Merrill, president of Merrill & Usher Co. here, president of the Worcester Chamber of Commerce and a past regional director of the American Steel Warehouse Assn., has been elected a member of the Corp. of Simmons College, Boston.

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IH Asks Stockholders To Approve Employee Stock Purchase Plan

Chicago

• • • International Harvester Co. on Apr. 7 mailed a proxy statement to 4600 stockholders asking approval of a common stock purchase plan for employees. Stockholders will vote on the question at the company's annual meeting in Hoboken, N. J., May 12.

Features of the contemplated plan are: All employees with 2 or more years of service would be eligible to take part; the company would make available 1.2 million shares of common stock not previously issued; a ceiling would be placed on the amount of stock to which any one employee could subscribe; no employee could buy more than an amount equal to one-third of his regular yearly wages or salary; prices of stock would be not more than the average between the highest and lowest prices reported in the New York stock exchange for certain definite periods, and not less than 20 pct below that average.

Other proposed rules involved in the plan are that the payments would be made by employees through payroll deduction; stock would be delivered at the end of each 12-month period; once the stock has been issued and delivered there would be no restrictions on what the employee did with it; in the case an employee left the company or for any reason wished to withdraw he could get back any money which had been deducted from his pay and not yet invested in stock, plus interest at a rate not higher than 3 pct.

Warehouse Assn. Elects

Pittsburgh

• • • H. C. Armstrong has been elected president of the Pittsburgh chapter, American Steel Warehouse Assn. Charles Potter was named first vice-president; D. M. Stembel, second vice-president; M. C. Craven, secretary and A. P. Levinson, treasurer. Donald C. Lott was named director to represent the local chapter on the national board of directors.

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See my glossy surface? It stays that way. I don't clog, either. Things just whiz through me.



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NEWS OF INDUSTRY

Reports Final Analysis '47 Canadian Production

Toronto

... Final analysis of 1947 reports from manufacturers of iron and steel and their products in Canada indicates a gross production value of \$1,854,915,562 at factory prices. This output value was 31.9 pct above the corresponding figure for 1946.

The values by industries for 1947 were as follows, in millions of dollars: Pig iron, ferroalloys, steel and rolled products, \$216.3; iron castings, \$102.5; heating and cooking apparatus, \$44.9; boilers, tanks and platework, \$35.8; farm implements, \$89.4; machinery, \$200.9; automobiles, \$340.9; automobile parts, \$131.5; bicycles, \$4.0; aircraft, \$44.3; shipbuilding, \$110.1; railway rolling stock and parts, \$159.3; wire and wire goods, \$54.6; sheet metal products, \$129.5; hardware, cutlery and tools, \$79.5; bridge and structural steel work, \$52.6; machine shops, \$22.6, and miscellaneous steel products, \$36.0.

In 1947 a total of 2469 factories operated in this group and employed a monthly average of 263,482 people who were paid \$559.9 million for salaries and wages. Materials used in manufacturing processes cost \$871.9 million and fuel and electricity cost \$43.7 million.

Receives Annual Award

Boston

... Senator Ralph E. Flanders of Vermont, president of Jones & Lamson and Bryant Chucking Grinder Co. and a director of Lovejoy Tool Co., was recently presented the New England award by the Engineering Societies of New England at its annual dinner and meeting at Northeastern University. The award is made each year to a distinguished engineer.

Dr. James R. Killian, Jr., newly elected president of the Massachusetts Institute of Technology, was the principal speaker on "Trends in Engineering Education." Dean William C. White, director of Northeastern University day college and president of the Engineering Societies of New England, presided.

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AUTOMOTIVE STAMPINGS — HEAVY WELDMENTS — PRESSED STEEL SHAPES**



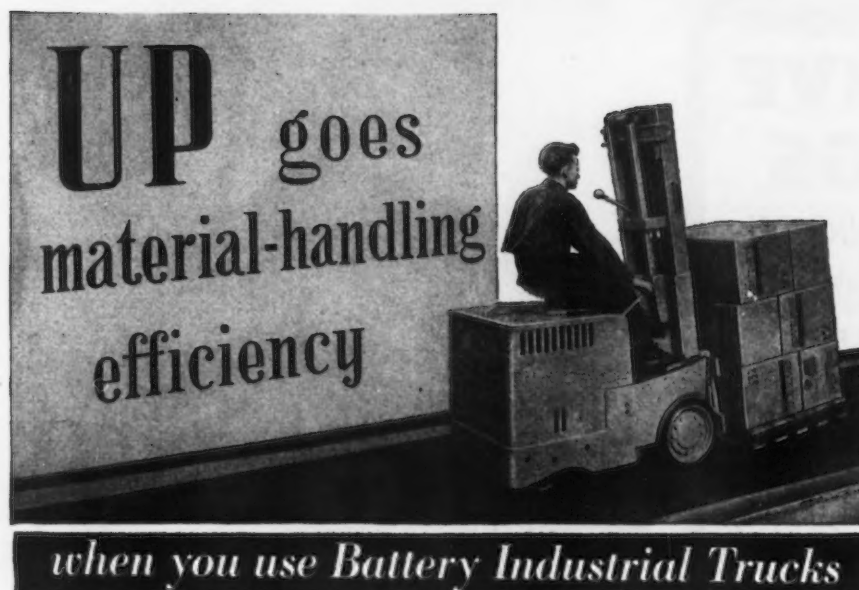
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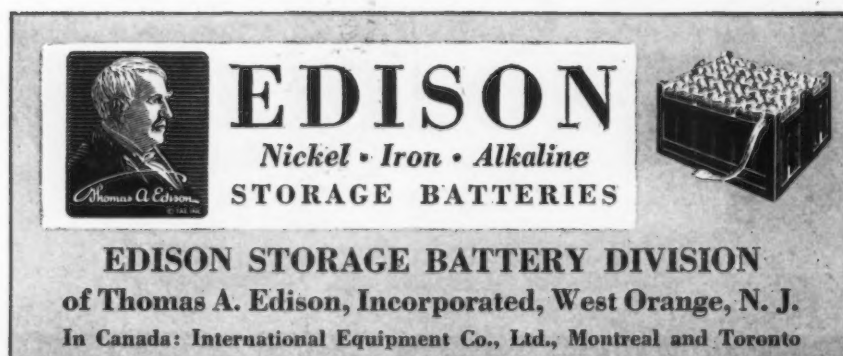
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In Canada: International Equipment Co., Ltd., Montreal and Toronto

CGB Approves Plan to Acquire Harris Products

Cleveland

• • • Directors of Cleveland Graphite Bronze Co. have approved a plan for the company to acquire the Harris Products Co. through an exchange of stock, subject to certain conditions which are expected to be satisfied within a short time, according to a company announcement.

The plan calls for Cleveland Graphite Bronze to issue 22,874 additional common shares to be exchanged for Harris' entire issue of common stock plus 80 pct of the outstanding 6 pct preferred stock.

The Harris organization, with plants at Cleveland and Milan, Ohio, is to be continued with existing personnel as a subsidiary of Cleveland Graphite Bronze, the announcement stated.

The line of Harris products, including vibration-absorbing shackles and mountings used principally by the automotive industry, will broaden Cleveland Graphite's line and will fit in well with its sales organization, Cleveland Graphite officials stated.

The Harris Co., incorporated in 1945, is the successor to a business founded in 1933, and had sales last year of nearly \$2 million. Officers are C. H. Bitzer, president-treasurer; D. T. Bradley, vice-president in charge of engineering; R. G. Bradley, vice-president in charge of sales, and Ralph S. Tyler, secretary.

GIFS Publishes Cost Manual

Cleveland

• • • Gray Iron Founders' Society has announced publication of a revised basic cost manual for gray iron foundries, presenting foundry cost fundamentals in simple, graphic form. Sections of the book are devoted to a general description of basic cost finding principles, how to install and operate the system and a special section of interest to managers, executives, sales managers, and others.

The GIFS cost committee includes: A. E. Hageboeck, Frank Foundries Corp., Moline, Ill., chairman; H. L. Edinger, Barnett

Foundry & Machine Co., Irvington, N. J.; R. T. Lewis, Keen Foundry Co., Griffith, Ind.; J. E. McIntyre, Sibley Machine & Foundry Co., South Bend, Ind.; S. P. Pufahl, Pufahl Foundry Co., Minneapolis. John L. Carter, GIFS cost consultant, was the principal author in his capacity of secretary to the cost committee.

The manual contains 51 printed pages, size 8½ x 11, and is attractively printed and bound; price \$5 per copy. Orders should be addressed to Gray Iron Founders' Society, Inc., 210 National City-East Sixth Building, Cleveland 14.

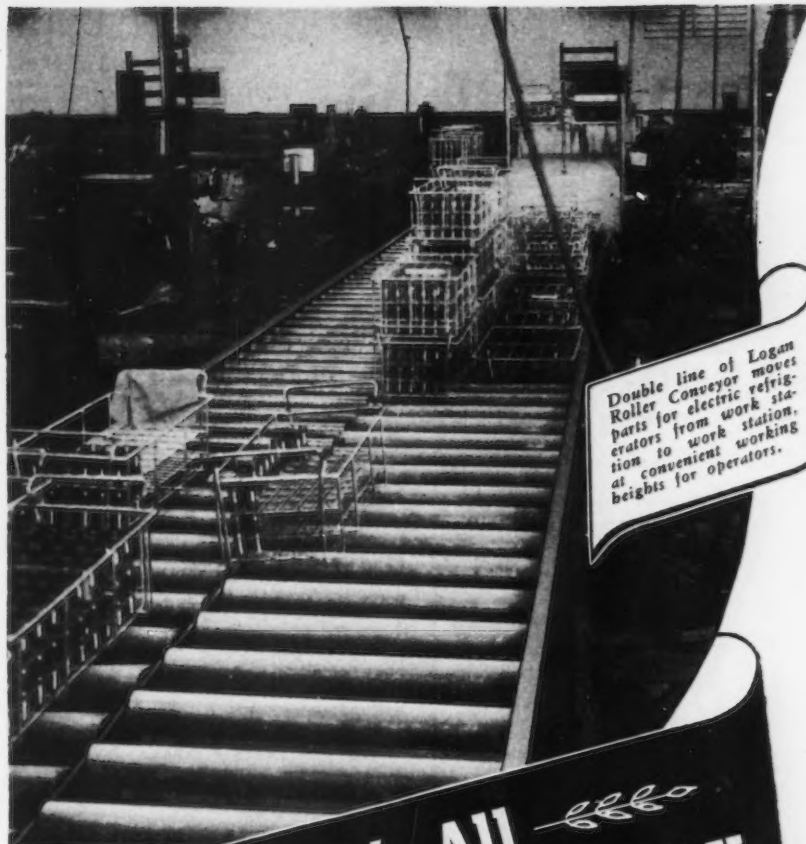
Plans Training Course For Junior Executives

Washington

••• A 1-week training course in the fundamentals of the iron and steel scrap industry for junior executives of that industry is being planned by the Institute of Scrap Iron & Steel Inc. in conjunction with the School of Commerce of Northwestern University, Chicago.

Approval of this course was given by the board of directors of the Institute at its recent meeting in New York. The course will be planned and supervised jointly by headquarters of the Institute and Northwestern University, with the guidance of an advisory committee from the Institute of which Harold Weinstein, Chicago, is chairman, and Herman Caplan, Pittsburgh, and Benjamin Schwartz, New York, are members.

While the curriculum of the course has not yet been frozen, it is contemplated that it will include lectures on the background, function, scope, and world aspect of the scrap industry; organization and function of the Scrap Institute; a discussion of methods of preparation, sources of scrap, and transportation; labor relations; safety; marketing technique; engineering and layout of yards; administration, accounting, and insurance; metallurgical aspect of the use of scrap by steel mills, foundries, and miscellaneous uses; public relations; and lectures on general business eco-



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4875

176—THE IRON AGE, May 5, 1949

nomics, financing, and forecasting. Inspection trips will be made to steel mills and foundries in the Chicago district.

The lecture staff for the course will be drawn from the faculty of Northwestern University, steel mills and foundries, manufacturers of equipment, and experienced members of the scrap industry.

Tentatively, it has been decided that the course will be given in the last week of August, but no applications for admission should be made until the program has been worked out in greater detail.

Sets Production Records

Salt Lake City

••• Geneva steel plant establishes new monthly production records during March in tons of ingots, slabs and blooms, pig iron and furnace coke.

The month's ingot production was 117,898. The previous high was 116,804 tons in December 1948. The new high mark for slabs and blooms was 105,226 tons. Previous record was 93,290 tons in November 1948. March pig iron production was 88,101 tons, compared with a previous high of 87,163 in December 1948 and furnace coke production was 79,766, compared with a previous high of 79,585 tons in December 1948.

Stewart-Warner Sales Down

Chicago

••• Net sales of Stewart-Warner Corp. in 1948 were \$72,534,085, down 5.7 pct from 1947 sales. Net profit carried to surplus was \$3,154,316, equal to \$2.44 per share of \$5 par value common stock and 29.5 pct greater than 1947 profits. This was recently revealed by James S. Knowlson, president and board chairman, in his letter to stockholders in the firm's 43rd annual report. Sales in 1947 were \$76,930,304 and profit carried to surplus was \$2,436,634, or \$1.88 per share.

Four quarterly dividends of 25¢ per share were paid in 1948, plus an additional year-end dividend of 50¢, bringing the total dividend distribution to \$1.50 per share or 62 pct of net profit for the year. Dividends in each of the previous 4 years were \$1 per share.

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Labor Disputes For '48 Shows Continued Downtrend in Strikes

Washington

• • • Issued while Congress still wrangles over repeal of the Taft-Hartley Act, a Labor Dept. report on labor disputes for 1948 shows a continued downtrend in strikes. The department includes all stoppages involving six or more workers for 1 day or more.

Repealists insist that, instead of curbing strikes, the act actually foments work stoppages. Offsetting the charge is the department report showing fewer strikes, few workers involved, and fewer man-days lost than in either 1947 or 1946.

For work stoppages, the department report shows 3419 in 1948 as compared with 3693 in 1947 and 4985 in 1946, the last full year of the Wagner Act.

In the number of workers involved, the same report shows 1,960,000 in 1948, as compared with 2,170,000 in 1947 and 4,600,000 in 1946.

As to work time lost, the figure for 1948 was 34.1 million, in 1947 it was 34.6 million, and in 1946 it was 116 million. Percentages of work time lost were given as 0.37 last year, 0.41 in 1947, and 1.43 in 1946.

Prewar averages were: stoppages, 2613; workers, 1.7 million; idleness, 16.9 million man-days, and worktime percentage lost, 0.27.

Wage disputes ranked first as the cause of strikes last year, the department says. And among industries, the greatest unrest was in mining (largely coal) with 615 individual strikes. Construction was second with 380.

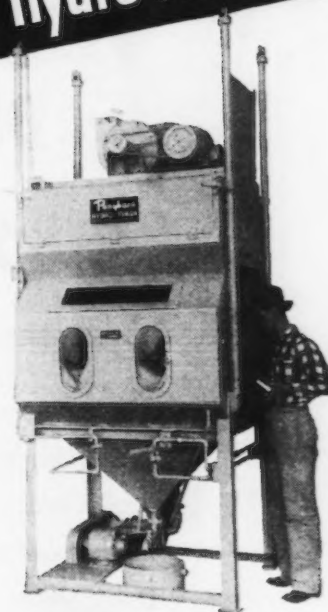
Will Rebuild Plant

Le Roy, N. Y.

• • • The plant of the Union Steel Chest Corp., which was recently destroyed by fire with a loss estimated at \$500,000, will be rebuilt "as soon as possible," it was announced by Samuel A. Myers, treasurer. He said the plant was covered by insurance.

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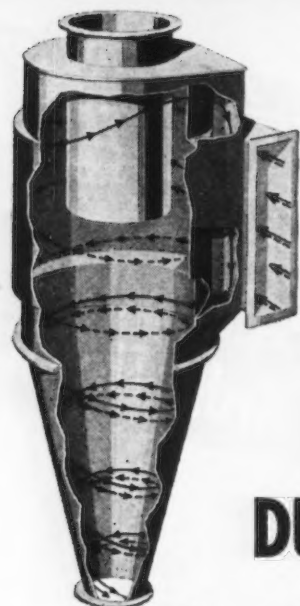
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Congress Considers Legislation to Aid Tin Smelting Here

Washington

• • • Legislation designed to promote the tin-smelting industry in the United States and in the Western Hemisphere is under consideration in Congress.

A bill (S. 1433) sponsored by Senator Myers, D., Pa., would allow the Reconstruction Finance Corp. to sell low-grade tin ore concentrates to industry at no greater loss than it would cost RFC to process them.

Secretary of Commerce Sawyer, in urging the Senate Banking Committee to report the bill favorably to the floor of the Senate, said there were two principal benefits to the proposed program:

(1) A secondary source of tin smelting would be established.

(2) Concentrates from South America, rather than from the Pacific, would be brought to the U. S. In case of war, the domestic industry would not have to risk losing Pacific sources, Sawyer said.

Sawyer told the committee it would be "highly desirable" if it were possible to smelt low-grade ores in this country without the necessity of mixing them with high-grade concentrates.

"I believe this is a very fair basis upon which the Federal Government can and should promote and foster private technical research and development with the objective of ultimately having a diversified domestic smelting industry owned and operated by private firms," Sawyer stated.

He said the bill would provide an incentive to private investment which would enable the Federal Government to get out of the tin smelting business.

Wylie F. McKinnon, chief of the RFC's tin division, hinted that lower tin prices might result from establishment of the proposed program. He pointed out that Grade A tin is now selling at \$1.03, ex dock. Prewar prices were in the neighborhood of 50¢. He said he believed prices were now at or near their peak.

RFC now buys all the tin con-

sumed in the United States. The agency also is the largest buyer in the world, McKinnon said. Regarding the operation of the giant tin smelting at Texas City, Texas, McKinnon said the plant—built and operated during the war by RFC—is now running “at a very small loss.” The capacity of the Texas City smelter is such that it can provide 100 pct of U. S. tin demand in an emergency.

Record Profits for '48

Youngstown

• • • McKay Machine Co. had the best year in its history in 1948, with net income of \$331,196. The 1947 net income was \$255,502.

Earnings in 1948 were equal, after preferred dividends, to \$6.16 on the 53,339 common shares, compared with \$4.93 per share in 1947.

Harvey D. Miller, president, said he expects McKay to have another good year in 1949, with business probably stabilized by 1950.

Mr. Miller said the company has enough business on its books to carry on operations until fall, at present levels, and expects enough additional business to keep the largest part of the present organization going the full year.

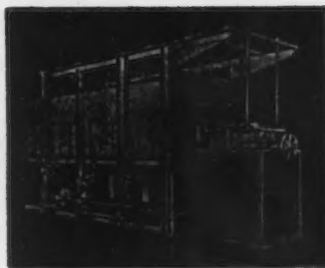
Net sales were \$3,009,840 for 1948, compared with \$2,663,617 in 1947.

Has Favorable Position

Salt Lake City

• • • Geneva Steel Co. is in a particularly favorable position from the standpoint of demand for its products in the opinion of Alden G. Roach, president of Columbia Steel Co.

Mr. Roach, who visited the plant last week with M. W. Reed, vice-president in charge of engineering for U. S. Steel Corp., and other officials, said the “softening” in demand does not apply to Geneva’s major products, notably plates and hot-rolled sheets. He expressed the opinion also that the present and prospective rate of western industrialization would lessen the impact in this area of a general nationwide decline in demand for steel.



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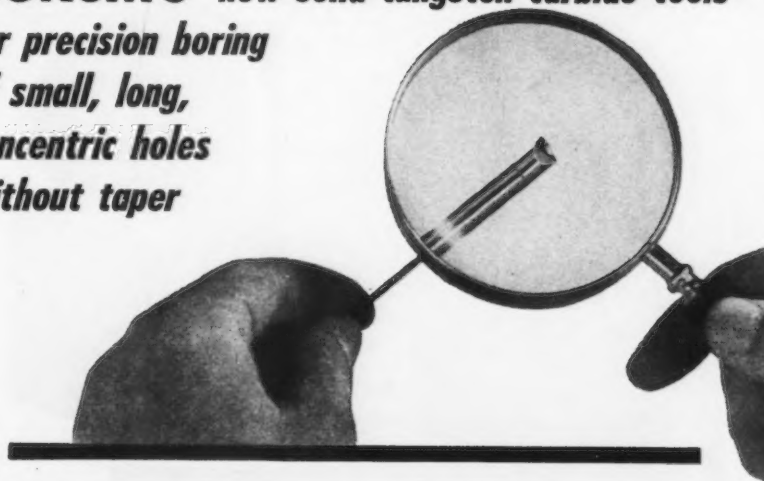
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for precision boring
of small, long,
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without taper



Here's a new development in tools that enables you to bore small diameter holes to extreme depth with precision. Here's a boring tool with great rigidity. Cutting heads and shanks are made of two different grades of carbide. Shank diameters range from 1/8" to 1/2".

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SEND FOR BULLETIN G-948

ARMSTRONG

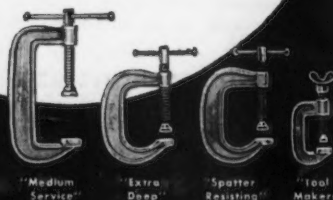
Drop Forged "C" CLAMPS



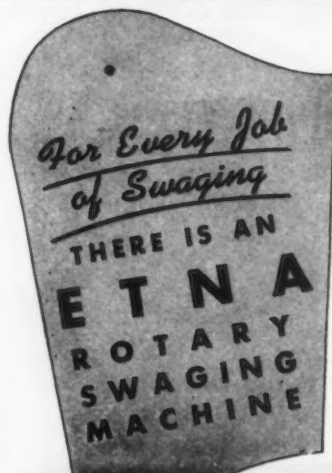
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That is why it is a good policy to standardize on ARMSTRONG "C" clamps. As one of the 9 major ARMSTRONG lines your local dealer carries ARMSTRONG "C" Clamps in "Heavy Duty", "Medium Service", "Extra Deep Throat", "Spatter Resisting" and "Toolmakers" designs, in a wide range of sizes.



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- Built to handle the severest work with capacities up to 14 inches in diameter.
- Integral forced coolant and lubrication systems.
- Handle hot or cold work.
- Readily equipped with a variety of feeding devices.
- Cast alloy steel drum mounted on base and bolted to front housing.
- Timken bearings take spindle thrust. Radial ball bearing in rear of flywheel.
- Alloy steel forged, heat-treated and ground spindle.
- A taper fit is used for the flywheel which is further secured by a split nut and key.
- Hammers, rolls and inner ring of heat-treated alloys.
- Motor is mounted over the machine on an adjustable bracket, the power being transmitted by V-belts.

WRITE FOR DESCRIPTIVE LITERATURE

THE ETNA MACHINE CO.

3406 MAPLEWOOD AVE. • TOLEDO 10, OHIO

NEWS OF INDUSTRY

Jack & Heintz Reports \$2½ Million Loss in '48

Cleveland

• • • Jack & Heintz Precision Industries, Inc., has reported loss for the year ended Dec. 31, 1948, of \$2,890,160. After giving effect to substantial write-downs of inventories and adjustments applicable to former years, the loss carried to surplus was reduced to \$2,663,623. This compares with net income of \$174,623 in 1947.

Kenneth G. Donald, president, stated in his letter to shareholders that a recasting of the entire structure of the company with respect to organization, facilities, inventory, product lines and program has been a major operation.

Sales last year declined from \$21,519,828 in 1947 to \$12,758,022. The decline resulted principally in the reduction in volume of fractional horsepower motors. Aviation products showed a substantial gain in volume and, according to Mr. Donald, sales of these products are constantly increasing.

The annual report calls attention to the company's entry into the light weight transportation field with the marketing of a new type bicycle motor which will be launched in May. Mr. Donald stated the decision to enter this market is significant for the further reason that it marks the company's initial approach to the consumer goods field.

Purchases WAA Property

Oakland, Calif.

• • • The 52-acre property formerly operated for the government by the Moore Dry Dock Co. has been purchased from the WAA by the newly organized Oakland Dock & Warehouse Co. for \$1,201,500 according to Robert B. Bradford, WAA regional director. Original cost was \$10 million. Under the terms of the sale the shipbuilding facilities will remain available for use under the National Security Act. It is believed the purchasers will continue ship repair and outfitting and also establish warehousing facilities.

Personals

(CONTINUED FROM PAGE 124)

• **William A. Muth, Jr.**, has been named Ohio representative of the Wellman Bronze & Aluminum Co., Cleveland. Mr. Muth formerly served as vice-president and general manager of the Aluminum Permanent Mold Co., Cleveland.

• **Arthur B. Goetze** has been appointed works manager of the Tonawanda plant in Buffalo, N. Y., the 42nd Street shops in New York and the Allentown, Pa., plant, Western Electric Co., New York. Mr. Goetze, who has been acting works manager of these plants, replaces **William K. Wiggins**, who has retired. Mr. Goetze has also been appointed acting works manager of the Point Breeze Works in Baltimore, temporarily replacing **John R. Shea**, who has a sick leave. Mr. Goetze has been with the company 32 years, serving in various executive capacities in the manufacturing, accounting and sales divisions, and had recently been the company's personnel director.

• **George A. Spencer** has been appointed to head the Los Angeles sales office of American Nickeloid Co., Peru, Ill.

• **Fred L. Way** has been appointed sales manager of the Rust Prevention division of Nox-Rust Chemical Corp., Chicago. **Robert G. Clendenin** has been appointed assistant sales manager. **Carl E. Salzman** has been named district manager of the Chicago area and **D. K. Blankenship** district manager of an area comprising Ohio, Indiana and portions of Michigan and Kentucky.

• **B. H. Lewis** has been appointed assistant freight traffic manager at Detroit for the Wabash Railroad Co., succeeding **D. E. Gilbert**, who died. **Robert F. Stapleton** has been appointed assistant general freight agent at Detroit succeeding Mr. Lewis. **Val O. Guyton** has been made division freight agent there. **J. F. Crinigan** has been appointed division freight agent at Springfield, Ill., succeeding Mr. Stapleton. **Harold L. Jackson** has been appointed traveling freight agent at Decatur, Ill., succeeding Mr. Crinigan. **Roger M. Bohn** has been named traveling freight agent succeeding Mr. Guyton.

• **A. R. Schumann**, formerly district sales manager, has been named manager of sales, Standard Tube Co., Detroit. **L. B. Boensch** has been appointed sales engineer specializing in stainless and alloy steel tubular products.

• **Joseph C. Gibbons** has been named manager of resistance wire sales for the C. O. Jelliff Mfg. Corp., Southport, Conn. Mr. Gibbons had formerly served as sales manager of the Wilbur B. Driver Co., Newark.

• **Thomas R. Clark**, vice-president of the American Express Co., has been elected to the board of directors of American Arch Co., New York.

• **Frederick E. Bickel** has been appointed to the sales staff of Van Huffel Tube Corp., Warren, Ohio. Mr. Bickel had formerly been associated with Copperweld Steel Co.

• **Carl R. Megowen** has been appointed executive vice-president of Owens-Illinois Glass Co., Toledo. **Hugh C. Laughlin** has been named a vice-president.

• **Otto A. Seyfreth** has been elected a director of Michigan Bumper Corp., Grand Rapids. Mr. Seyfreth is president and a director of West Michigan Steel Foundry and Austin Trailer Equipment Co., Muskegon, Mich.

• **Edward L. Lockman** has been appointed manager of tank lining and roll covering sales for U. S. Rubber Co., New York. Mr. Lockman has been with U. S. Rubber since 1934.

• **T. C. Gerber** has been appointed director of the pipe joint division of Gates Engineering Co., New Castle, Del. Col. Gerber had formerly been assistant to the president of Certain-Teed Products Corp.

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swings load to
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HANDLING SERVICE

KRANE KAR is a lively swing-boom mobile crane, gas or diesel operated, of compact dimensions, short turning radius. It transports any load it can lift. Put it to work in any part of your plant, yard, or stores; it will speed up production, cut down handling costs. Available for service 24 hours a day, every day.

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WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER
1½, 2½, 5, AND 10 TON CAPACITIES

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MACHINE TOOLS

... News and Market Activities

FRB Index Shows Continued Decline in Machine Tool Production

• • • Reliable sources in the machine tool industry reported this week that "new business is spotty and irregular," an accurate generalization of the facts which is fast becoming a bromide in the machine tool business.

According to the Federal Reserve Board's seasonally adjusted index, industrial production declined in March for the fourth straight month and the downswing is continuing, the board reported. March output, the board's index, dipped to 184 pct of the 1935-1939 average compared with 189 in February and 191 in March, 1949.

At the same time, National Machine Tool Builders' Assn. released its March index showing an increase in new orders and shipments. Some observers seized upon the figures as irrefutable evidence of the start of an upswing not only in machine tools, but in many other lines. About half the machine tool industry got more business during March; the other half got less. Machine tools rarely, if ever, buck the national trend; they go with it and one swallow doesn't make a summer.

In Cleveland, long-term prospects for Warner & Swasey Co. are satisfactory and increased sales should materialize, barring unforeseen developments, over the next decade, Charles J. Stilwell, president, told shareholders at their annual meeting held here last week.

"Our company," Mr. Stilwell said, "is engaged in the building of machines that cut manufacturing costs. The domestic consumer price trend is, therefore, in itself an indicator of the potential demand for our products within this country, provided hesitation with regard to capital expenditures is overcome. Meanwhile, our outlook for export sales has been improved, due to developments in ECA policies, which apparently are now going to permit European demand for American-built ma-

New Business Lags But Some Observers Are Confident of Future Prospects

• • •

chine tools to be realized in terms of actual purchases.

"A further factor in the long-term outlook for our company is the progress made since the war in the development of new products. We hope, for example, that our new weaving machine will go into production during the year."

Regarding the strike that is still in effect at the company and has been continuing since Dec. 28, Mr. Stilwell said:

"Frankly, it is impossible at this moment to try to predict the outcome of the strike or to estimate the effect upon the company. But I do want to state briefly the underlying issue.

"Over the years, the union has always insisted upon 'more'. From the very beginning, we knew that one day the time would come when we would have to say 'No' to the union, or place ourselves in such a position with regard to costs that we could be no longer competitive within our field.

"That time came last September and we said 'No'. The issue, as I see it, is whether the union or the management is going to run this company. We have decided that the management is still in charge.

"Because our company is old enough in years, we naturally think in terms of long-range possibilities. Though the current strike is a nuisance and is costly, we believe that seeing it through, on the stand we have taken, will prove, in the long run, for the best interests of both the employees and the shareholders."

Present directors were reelected, and at a directors' meeting following the shareholders' meeting present officers were reelected.

Also in Cleveland, directors of National Acme Co. declared the usual quarterly dividend of 50¢ a share, F. H. Chapin, president, reported. Net profit for the first quarter totaled \$293,866 after all charges, including federal income tax of \$179,000 compared with \$326,252 for the first quarter of 1948 when income tax provision totaled \$202,000.

In Hartford, sale of Henry & Wright Mfg. Co., makers of automatic machinery for stamping parts, to the Hartford-Empire Co. for \$1,200,000 was announced this week. Sixten F. Wollman, Hartford-Empire president, said the purchase "was to supplement our manufacturing facilities and to broaden our field of operations." Frank K. Simmons, president, Henry & Wright, is retiring because of ill health. Mr. Kollman has been elected president of the company. No personnel changes are anticipated. Henry & Wright was organized by Mr. Simmons in 1934. The company's 1948 net profit after taxes was about \$266,000.

In New York, Greenfield Tap & Die Corp. reported net income for the first quarter of \$106,309 compared with net income of \$176,394 for the corresponding quarter of 1948.

In Detroit, the crying towels owned by machine tool suppliers are out this week as new orders continue at very low levels. Meanwhile, reports are heard concerning cut-competition between Detroit's tool and die shops, indicating the near desperation of this segment of the industry.

At the moment the nearest approach to a tooling program is only a rumor circulating to the effect that Motor Wheel Co., Lansing, is "considering" a program. Other than this, the Dodge program seems to be stalemated and some sources do not look for a revival of interest here for many months.



Time and Cost Saving Features

TYPE "A"
ASSEMBLY BIT



ON WHICH CLUTCH HEAD CHALLENGES COMPARISON WITH ANY AND ALL OTHER SCREWS

1. **What Other Screw** equals the high visibility of the CLUTCH HEAD recess to check out the slow-down of hesitation . . . even with "green" operators?
2. **What Other Screw** frees the line from burred and chewed-up heads with automatic straight driving . . . with Center Pivot entry that prevents driver canting?
3. **What Other Screw** has a non-tapered driving engagement (without dangerous "ride-out" as set up by tapered driving) to eliminate the hazard of skid damage? . . . and the need for fatiguing end pressure?
4. **What Other Screw** provides a simple Lock-On which unites screw and bit as a unit to hurdle "fumble spots" by permitting one-handed reaching and driving from any angle?
5. **What Other Driver** can begin to approach the durability record of the rugged Type "A" Bit . . . 214,000 screws driven non-stop?
6. **What Other Assembly Bit** can be repeatedly reconditioned on the spot by a 60-second application of the end surface to a grinding wheel . . . for unmatched tool economy.
7. **What Other Modern Screw** has a recess basically designed for operation with a common screwdriver . . . for the simplification of field service adjustments?

COMMON
SCREWDRIVER



According to users of CLUTCH HEAD Screws, you may confidently expect these time- and cost-saving features to deliver assembly production increases ranging from 15% to 50%.



The New CLUTCH HEAD Brochure details and illustrates the exclusive advantages of America's Most Modern Screw. Your copy will come to you by mail on request . . . mentioning the types and sizes of screws in which you are interested.

UNITED SCREW AND BOLT CORPORATION

CLEVELAND 2

CHICAGO 8

NEW YORK 7

NONFERROUS METALS

... News and Market Activities

Copper and Zinc Are Latest Metals to Feel Price Reductions

Rapid Decreases In Metals Prices Causing Alarm In Some Quarters

o o o

New York

• • • Another reduction in the price of copper was made by a custom smelter on May 2, bringing down the price to 18.50¢ Connecticut Valley. So far the mine producers have continued to quote at 23.50¢, but there is no tonnage being sold at this price. There are indications that the latest price move is acting to force action by producers who are studying the price development closely. Announcement of a major reduction by copper producers might well be expected at any time.

On Apr. 28 there was a further reduction in the price of zinc, which brought down the price of Prime Western to 12.50¢, East St. Louis. Although the latest reduction was only ½¢ per lb, it was the fifth price reduction since Mar. 22 for a total of 5¢ per lb.

The latest drop in the price of copper was the fourth since Mar. 29 for a total of 5¢ per lb. So far the copper reductions have been made only by the customs smelters. At the same time the refineries reduced buying prices for copper scrap by \$10 a ton, bringing down prices of copper wire to 13.00¢ for No. 1, 12.00¢ for No. 2, and 11.00¢ for light copper.

Consumers generally have been expecting the copper price to drop to about 18.00¢. Current scrap prices are about the equivalent of a market at that price. The 18.50¢ copper price is lower than the price of the metal since Nov. 19, 1946.

Repeated price reductions in lead, zinc and copper seem to have confirmed the accuracy of consumers' estimates of the extent of the weakness of the metal markets at recent high prices. Producers say that the lowering of prices has done nothing to stimulate business. On the contrary, consumers have been leaning over backwards to keep their working inventories at the lowest possible levels. Producers of lead and zinc report that the size of orders has gradually increased to carload lots in some cases. But they are constantly being requested for immediate delivery showing that for some people inventories cannot be reduced any further.

There has been consternation in some quarters at the rapid drop in metals prices. At present high wage rates, many high cost producers of copper, lead and zinc will be forced out of production. The Calumet and Hecla Consolidated Copper Co. has notified its customers that all its mining operations in Michigan will be closed down as of May 1.

The company will continue smelting and refining operations at least until present stocks of ores are worked out. According to a statement by Endicott Lovell,

Monthly Average Prices

• • • The average prices of the major nonferrous metals in April based on quotations appearing in THE IRON AGE, were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley	21.721
Lake copper, Conn. Valley	23.625
Straits tin, New York	\$1.03
Zinc, East St. Louis	14.058
Zinc, New York	14.758
Lead, St. Louis	14.958
Lead, New York	15.154

president, orders dropped off almost completely about a month ago.

At the recent meeting of the American Zinc Institute at St. Louis, a review of the labor and supply costs in the lead-zinc mining industry since 1939 by W. C. Page of U. S. Smelting, Refining & Mining Co. indicated that operating costs have doubled and in some cases tripled since 1939. The data were obtained on an industrywide basis. Findings indicated that average labor costs per ton mined showed an increase of 135 pct over the average in 1939. Supply costs were up by an average of 113 pct.

There is pressure for price reductions at the present time in metals that have not yet suffered quite as heavily from the loss of orders as those mentioned above. The aluminum market has not dried up completely as yet but consumers are expecting price reductions. Price increases in aluminum and its products were not as great as in many other metals, so producers feel there is no cushion on which to draw for price adjustments.

Nonferrous Metals Prices

	Apr. 27	Apr. 28	Apr. 29	Apr. 30	May 2	May 3
Copper, electro, Conn.	20.00-23.50	20.00-23.50	20.00-23.50	20.00-23.50	18.50-23.50	18.50-23.50
Copper, Lake, Conn.	23.625	23.625	23.625	23.625	23.625	23.625
Tin, Straits, New York	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03	\$1.03
Zinc, East St. Louis	13.00	12.50	12.50	12.50	12.50	12.50
Lead, St. Louis	14.80	14.80	14.80	14.80	14.80	14.80

Primary Metals

(Cents per lb, unless otherwise noted)

Aluminum, 99+%, 10,000 lb, freight allowed	17.00
Aluminum pig	16.00
Antimony, American, Laredo, Tex.	38.50
Beryllium copper, 3.75-4.25% Be, dollars per lb contained Be	\$24.50
Beryllium aluminum 5% Be, dollars per lb contained Be	\$52.00
Bismuth, ton lots	\$2.00
Cadmium, del'd	\$2.00
Cobalt, 97-99% (per lb)	\$1.80 to \$1.87
Copper, electro, Conn. Valley	18.50 to 23.50
Copper, lake, Conn. Valley	23.625
Gold, U. S. Treas., dollars per oz.	\$35.00
Indium, 99.8%, dollars per troy oz.	\$2.25
Iridium, dollars per troy oz.	\$100 to \$110
Lead, St. Louis	14.80
Lead, New York	15.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex.	20.50
Magnesium, sticks, carlots	34.50
Mercury, dollars per 76-lb flask, f.o.b. New York	\$82 to \$84
Nickel, electro, f.o.b. New York	42.93
Palladium, dollars per troy oz.	\$24.00
Platinum, dollars per troy oz.	\$72 to \$75
Silver, New York, cents per oz.	71.50
Tin, Grade A, New York	\$1.03
Zinc, East St. Louis	12.50
Zinc, New York	13.20
Zirconium copper, 10-12 pct Zr, per lb contained Zr	\$12.00

Remelted Metals

Brass Ingot

(Published prices, cents per lb delivered, carloads)

\$5-5-5-5 ingot	
No. 115	15.25*
No. 120	14.75*
No. 123	14.25*
\$8-10-10 ingot	
No. 305	21.75
No. 315	18.75
\$8-10-2 ingot	
No. 210	28.50
No. 215	25.50
No. 245	18.00*
Yellow ingot	
No. 405	13.00*
Manganese bronze	
No. 421	19.50
* F.o.b. Philadelphia.	

Aluminum Ingot

(Cents per lb, lots of 30,000 lb)

95-5 aluminum-silicon alloys	
0.30 copper, max.	21.00-21.50
0.60 copper, max.	20.50-21.00
Piston alloys (No. 122 type)	18.00-18.50
No. 12 aluminum (No. 2 grade)	17.00-17.50
108 alloy	17.25-17.75
195 alloy	18.50-19.00
13 alloy	20.50-21.00
AXS-679	18.00-18.50

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95 pct-95½ pct	18.25-18.50
Grade 2—92 pct-95 pct	17.25-17.50
Grade 3—90 pct-92 pct	16.25-16.50
Grade 4—85 pct-90 pct	15.50-16.00

Electroplating Supplies

Anodes

(Cents per lb, freight allowed, in 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	38¼
Electrodeposited	32¾
Rolled, oval, straight, delivered	35¾
Ball anodes	36¾
Brass, 80-20	
Cast, oval, 15 in. or longer	33¾
Zinc, oval, 99.886, f.o.b. Detroit	22½
Ball anodes	20½
Nickel 99 pct plus	
Cast	59.00
Rolled, depolarized	60.00
Cadmium	\$2.15
Silver 999 fine, rolled, 100 oz. lots, per troy oz, f.o.b. Bridgeport, Conn.	79

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	48.00
Copper sulfate, 99.5 crystals, bbls	9.10
Nickel salts, single or double, 4-100 lb bags, frt. allowed	18.00
Nickel chloride, 300 lb bbl	24.50
Silver cyanide, 100 oz. lots, per oz	59
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc sulfate, crystals, 22.5 pct, bags	6.75
Zinc sulfate, 25 pct, flakes, bbls	7.75

Mill Products

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.183 in., 2S, 3S, 26.9¢; 4S, 61S-O, 28.3¢; 52S, 30.9¢; 24S-O, 24S-OAL, 29.3¢; 75S-O, 75S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 52S, 32.3¢; 24S-O, 24S-OAL, 30.9¢; 75S-O, 75S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 52S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 75S-O, 75S-OAL, 47.6¢.

Plate: ¼ in. and heavier: 2S, 3S, F, 23.8¢; 4S-F, 26¢; 52S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 75S-F, 75S-FAL, 33.9¢.

Extruded Solid Shapes: Shape factors 1 to 4, 35.1¢ to 66¢; 11 to 13, 36.1¢ to 78¢; 23 to 25, 38.2¢ to 81.07¢; 35 to 37, 45.7¢ to 165¢; 47 to 49, 67.5¢ to 24.1¢.

Rod, Rolled: 1.064 to 4.5 in., 2S-F, 3S-F, 34¢ to 30.5¢; Cold-finished, 0.375 to 3.5 in., 2S, 3S, 36.5¢ to 32¢.

Screw Machine Stock: Drawn, ¼ to 11/32 in., 11S-T3, R317-T4, 49¢ to 38¢; cold-finished, ¾ to 1½ in., 11S-T3, 37.5¢ to 35.5¢; ¾ to 2 in., R317-T4, 37.5¢ to 34.5¢; rolled, 1/16 to 3 in., 11S-T3, 35.5¢ to 32.5¢; 2½ to 3½ in., R317-T4, 33.5¢ to 32.5¢. Base 5000 lb.

Drawn Wire: Coiled, 0.061 to 0.374 in.: 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 38.5¢; 17S-T4, 50¢ to 34.5¢; 61S-T4, 44.5¢ to 34¢; 75S-T6, 76¢ to 55¢.

Magnesium

(Cents per lb, f.o.b. mill, freight allowed Base quantity 30,000 lb)

Sheet and Plate: Ma, FSA, ¼ in., 64¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58¢-60¢; 10, 59¢-61¢; 12, 63¢-65¢; 14, 69¢-74¢; 16, 76¢-81¢; 18, 84¢-89¢; 20, 96¢-1.01¢; 22, 1.12¢-1.31¢; 24, 1.62¢-1.75¢. Specification grade higher.

Extruded Round Rod: M, diam. in., ¼ to 0.311, 58¢; ½ to ¾, 46¢; 1¼ to 1.749, 43¢; 2½ to 5, 41¢. Other alloys higher.

Extruded Square, Hex. Bar: M, size across flats, in., ¼ to 0.311, 61¢; ½ to 0.749, 48¢; 1¼ to 1.749, 44¢; 2½ to 4, 42¢. Other alloys higher.

Extruded Solid Shapes, Rectangles: M, in weight per ft. for perimeters of less than size indicated, 0.10 to 0.11 lb. per ft. per. up to 3.5 in., 55¢; 0.22 to 0.25 lb. per ft. per. up to 5.9 in., 51¢; 0.50 to 0.59 lb. per ft. per. up to 8.6 in., 47¢; 1.3 to 2.59 lb. per ft. per. up to 19.5 in., 44¢; 4 to 6 lb. per ft. per. up to 28 in., 43¢. Other alloys higher.

Extruded Round Tubing: M, wall thickness, outside diam. in., 0.049 to 0.057, ¼ to 5/16, \$1.14; 5/16 to ¾, \$1.02; ¾ to 1, 76¢; 1 to 2 in., 65¢; 0.065 to 0.082, ¾ to 7/16, 85¢; ¾ to 1, 62¢; 1 to 2 in., 57¢; 0.165 to 0.219, ¾ to 1, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

	Nickel	Monel
Sheets, cold-rolled	60	47
Strip, cold-rolled	66	50
Rods and shapes		
Hot-rolled	56	45
Cold-drawn	56	45
Angles, hot-rolled	56	45
Plates	58	46
Seamless tubes	89	80
Shot and blocks		40

Copper, Brass, Bronze

(Cents per pound, freight prepaid on 200 lb)

	Sheets	Rods	Extruded Shapes
Copper	33.68		33.28
Copper, hot-rolled	29.53		
Copper, drawn		30.78	
Low brass	31.97		34.88*
Yellow brass	30.77		33.78*
Red brass	32.36		35.27*
Naval brass	35.75	29.81	31.06*
Leaded brass		25.32	
Commercial bronze	33.28		35.94*
Manganese bronze	39.25	33.15	34.65
Phosphor bronze, 5 pct	52.72		
Muntz metal	33.78	29.34	30.59
Everdur, Hercu-loy, Olym-pic, etc.	38.37	35.31	
Nickel silver, 10 pct	41.40	43.74	43.72
Architectural bronze			29.45
* Seamless tubing			

Scrap Metals

Brass Mill Scrap

(Cents per pound; add ¼¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turn-ings
Copper	17%	16%
Yellow brass	15	14½
Red brass	19¾	18¾
Commercial bronze	19¾	18¾
Manganese bronze	17¾	16¾
Leaded brass rod ends	17¾	

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper, wire	13.00
No. 2 copper, wire	12.00
Light copper	11.00
Refinery brass	10.50*
Radiators	7.12
* Dry copper content.	

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper, wire	13.00
No. 2 copper, wire	12.00
Light copper	11.00
No. 1 composition	10.00
No. 1 comp. turnings	9.50
Rolled brass	8.75
Brass pipe	9.00
Radiators	8.00
Heavy yellow brass	7.50

Aluminum

Mixed old cast	8.50
Mixed old clips	8.50
Mixed turnings, dry	7.00
Pots and pans	8.50
Low copper	12.00

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	12½—12½
No. 2 heavy copper and wire	11½—11½
Light copper	10½—10½
Auto radiators (unswaged)	6½—6¾
No. 1 composition	8½—8¾
No. 1 composition turnings	8½—8½
Clean red car boxes	7¾—8
Cocks and faucets	7¾—8
Mixed heavy yellow brass	6—6½
Old rolled brass	6½—7
Brass pipe	8—8½
New soft brass clippings	11—11½
Brass rod ends	7—7½
No. 1 brass rod turnings	6—6½

Aluminum

Alum. pistons and struts	4—4½
Aluminum crankcases	6—6½
2S aluminum clippings	10—10½
Old sheet and utensils	6—6½
Borings and turnings	3—3½
Misc. cast aluminum	6—6½
Dural Clips (24S)	6—6½

Zinc

New zinc clippings	6—6½
Old zinc	5—5½
Zinc routings	3½—3¾
Old die cast scrap	3—3½

Nickel and Monel

Pure nickel clippings	18—19
Clean nickel turnings	16—17
Nickel anodes	18—19
Nickel rod ends	18—19
New Monel clippings	13½—14½
Clean Monel turnings	8—9
Old sheet Monel	10—11
Old Monel castings	8—9
Inconel clippings	11—12
Nickel silver clippings, mixed	7—7½
Nickel silver turnings, mixed	6—6½

Lead

Soft scrap lead	8½—9
Battery plates (dry)	4½—5

Magnesium Alloys

Segregated solids	8—9
Castings	4½—5½

Miscellaneous

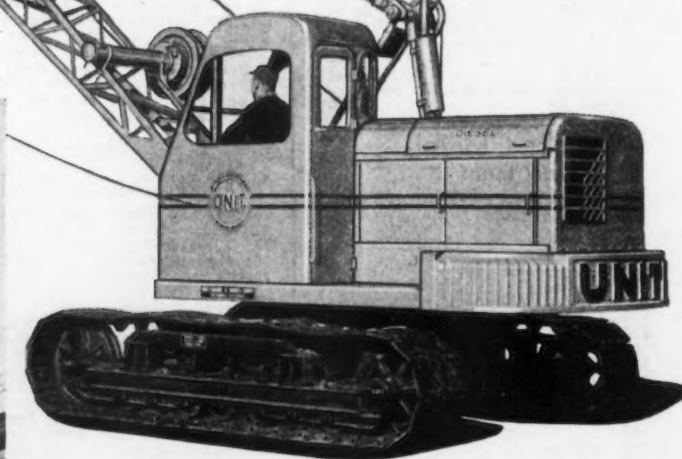
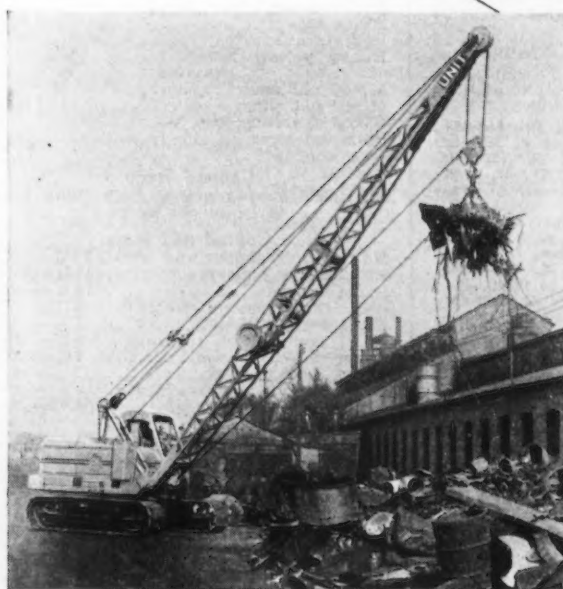
Block tin	77—79
No. 1 pewter	58—60
No. 1 auto babbitt	42—44
Mixed common babbitt	10½—11
Solder joints	14—15
Siphon tops	45—47
Small foundry type	12½—13
Monotype	11½—12
Lino. and stereotype	11—11½
Electrotype	8½—9
New type shell cuttings	10—10½
Hand picked type shells	5—5½
Lino. and stereo, dross	6½—7
Electro. dross	4½—5

UNIT 1020A

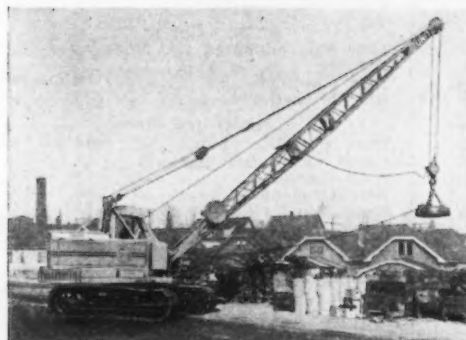
HEAVY-DUTY

The One Machine that Keeps Up with the Baler!

UNIT 1020A . . . Perfectly balanced . . . All-around stability . . . Handles a 45 inch magnet with ease.



The UNIT 1020A is designed and built for heavy-duty scrap yard operation. Extra long crawlers, wider axles and shoes, plus additional counterweight, provide perfect balance and all-around stability. Tipping strains are absorbed by hook-rollers. Owners using 45 inch magnets find them easy to handle. With full loads, there's no weaving or rocking. It has power and stability without bulk . . . fast on the hoist . . . easy on the swing. To modernize your yard — start with a UNIT 1020A.

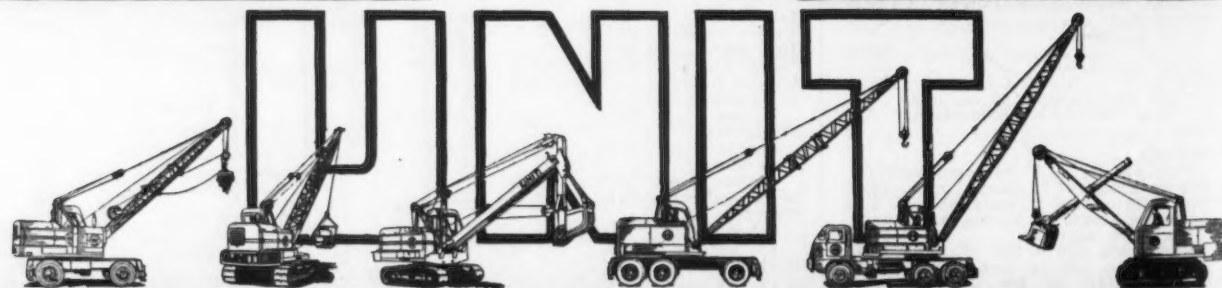


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Quickly convertible to hook, clamshell or magnet, the UNIT 1020A can handle every scrap yard job.

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A 5457-1P-C

Prices Stiffen But Orders Still Lag

New York

... This week there was further evidence of price stiffening, although no definite pattern has been formed. There were no indications that any of the mills would enter into the market on a large scale. Some consumers were placing orders for small tonnages, others were not interested because of high inventories.

THE IRON AGE scrap composite this week again advanced a few cents. It rose 16¢ per gross ton to \$23.08 per gross ton. This figure is \$19.92 per gross ton below the price at the first of the year. Prices for No. 1 heavy melting steel this week are: Pittsburgh, \$23.50 to \$24; Chicago, \$23 to \$24; and Philadelphia, \$21.50 to \$22.50.

Pennsylvania mills have been trying to buy large tonnage orders at today's quotations but are only able to get a small quota of their order. Brokers are willing to fill orders but dealers are reluctant to part with scrap at today's prices unless circumstances force them to do so.

PITTSBURGH—This week prices reached a point of indifference with a combination of dealer and mill indifference tending to halt the price dip—at least temporarily. Business is at a trickle in steel grades, nonexistent in cast iron grades. A sale at \$16 pushed machine shop turnings up 50¢ above last week's quotation. No. 1 machinery cast was \$1 a ton lower. Michigan industrial lists surprised few in the trade here and had no effect on the local market. It remains quiet with nothing to indicate it won't drift on down.

CHICAGO—Three errors occurred in last week's prices which are hereby corrected. Cast iron borings should have read \$13 to \$15, and short shoveling turnings \$14 to \$16. Also railroad grate bars should have read \$17 to \$18. Purchases by two mills last week confirmed beyond doubt the strengthening of the market. Railroad specialties did an abrupt about face when prices went up for the first time since last year. Railroad lists closed last week showed increases as high as \$5 in some items over prices for the same items the previous week. Mill inventories are still substantial. Youngstown Sheet & Tube entered the market for the first time in months. Comparatively little scrap is on hand in the dealers' yards and further buying in large tonnages might cause the market to rise further, observers here declare.

PHILADELPHIA—Scrap prices held firm last week, with news that brokers were having some difficulty in filling outstanding orders. Industrial and railroad scrap production is continuing, but dealers report that yard intake has dropped considerably in recent weeks. Consumers continue to place orders for small tonnages. One mill whose operations had been closed down is now operating. One mill has begun to pay a freight difference

Shortage Over—Grace

... From one of the biggest buyers of scrap comes the news that the scrap shortage is over. Speaking at a press conference last week E. G. Grace, chairman, Bethlehem Steel Co., flatly said: "The scrap shortage is over." And he added: "Scrap will be coming back from a full operation when the ingot rate is at a lower level."

Asked directly if there were any qualifications to his statement as to long or short term outlook, Mr. Grace frankly said: "There are no qualifications."

The company has earmarked scrap coming back from its customers priced at the current market quotations. It also has considerable supply of scrap on the ground and has firm commitments covering shipments from Germany.

It may be some time before Bethlehem comes into the open market for dealers' scrap in a big way. Said Mr. Grace: "I see nothing ahead to cause us to be large buyers of open market scrap."

of 29¢ a ton in order to equalize with another's rate. A pipe foundry that held up cast shipments, opened up for shipment again this week. There were no price changes.

CLEVELAND—Blast furnace grades were in short supply and some demand this week here and in the Valley as two major consumers bought tonnage in an apparently impoverished market. Brokers have been covering on blast furnace orders for several weeks in anticipation of the annual precoal strike scramble. But it is also possible that there is more strength to the present market than meets the eye, for one thing, plants are hanging on to their material for more money. On the other hand, if steel making operations continue to decline, the market here and in the Valley has not yet reached the bottom, although if prices go much lower, freight rates will make the movement of material complicated if not difficult. Last of the overseas tonnage bought by Cleveland-Valley consumers will come in this month which will contribute to a leveling off, as will cancellation of boat tonnage Apr. 30.

CINCINNATI—Mills here are holding up shipments or are out of the market

for all grades except blast furnace, which is showing a little strength as consumers await a possible coal strike. Openhearth material is very weak, but should all consumers in this district come into the market simultaneously, it is questionable if big tonnages could be bought at present prices, which are however, good for small tonnages. Foundries are buying very little and the market for the foundry and other premium grades continues to shrink from week to week. Scrap shipments in this district during April continued a downward trend which has been in effect since the first of the year.

DETROIT—An indication of the support being given to local prices of plant scrap is shown by the fact that an unprecedented volume of scrap—more than 100,000 tons—was absorbed here last week at prices ranging upward from \$3.52 over THE IRON AGE quotations of the previous week. Meanwhile, free dealer scrap which is quoted in THE IRON AGE has not yet been similarly supported and continues in the doldrums, merely holding on to the previous level.

NEW YORK—The same uncertainty characterized the scrap market as in previous weeks. There still is little interest on the part of consumers and many will be out of the market for the entire month of May. Some dealers are stockpiling, but on a very small scale. The list remained unchanged with one exception, clean cast chemical borings which are quoted at \$12 to \$14.

ST. LOUIS—Steel mills in the St. Louis industrial district purchased a small tonnage of No. 2 heavy melting steel at \$20 which was the price of their preceding purchase. The market seems to have leveled off. The sharp drop in price has caused a falling off in the collection of scrap in rural districts and supplies must come from local dealers. Foundry grades continue dull.

BOSTON—A slight stiffening in prices has been noted here in recent days and there is much hope now that the bottom has been reached. No. 1 steel is still quoted at \$14.50 to \$15.00 and other scrap items are holding fairly steady. Cast is still a discouraging commodity as foundries continue to work on their inventories.

BIRMINGHAM—Movement of material to dealers' yards here is very slow. Truckers are finding it difficult to meet expenses, let alone make a profit, on present prices. Dealers in such out-of-district points as Florida, that normally ship scrap to Birmingham, have been hard hit by the price decline and freight rate increases. In the Birmingham district prices are unchanged generally from last week and trading remains extremely light.

BUFFALO—Reductions of \$1 in blast furnace scrap and \$2 in machine shop turnings this week had no effect on other grades. The light end was weakened by continued absence of ferroalloy interests from the market and withdrawal of a local blast furnace for repairs.

IRON AND STEEL SCRAP PRICES

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$23.50 to \$24.00
R.R. hvy. melting	24.50 to 25.00
No. 2 hvy. melting	21.50 to 22.00
No. 2 bundles	19.50 to 20.00
RR. scrap rails	28.00 to 28.50
Rails 2 ft and under	33.50 to 34.00
No. 1 comp'd bundles	23.50 to 24.00
Hand bldd. new shfts.	21.50 to 22.00
Hvy. steel forge turn.	21.00 to 21.50
Mach. shop turn.	15.50 to 16.00
Shoveling turn.	18.00 to 18.50
Mixed bor. and ms. turn.	15.50 to 16.00
Cast iron borings	18.00 to 18.50
No. 1 mach. cast.	28.00 to 29.00
Mixed yard cast.	23.00 to 23.50
Hvy. breakable cast.	24.00 to 24.50
Malleable	31.50 to 32.00
RR. knuck. and coup.	30.50 to 31.00
RR. coil springs	30.50 to 31.00
RR. leaf springs	30.50 to 31.00
Rolled steel wheels	30.50 to 31.00
Low phos.	25.50 to 26.00

CHICAGO

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$23.00 to \$24.00
No. 2 hvy. melting	21.00 to 22.00
No. 1 bundles	23.00 to 24.00
No. 2 dealers' bundles	19.00 to 20.00
Mach. shop turn.	12.00 to 13.00
Short shov. turn.	15.00 to 16.00
Cast iron borings	14.00 to 15.00
Mix. borings and turn.	12.00 to 13.00
Low phos. hvy. forge	27.50 to 28.00
Low phos. plates	26.00 to 26.50
No. 1 RR. hvy. melt	25.00 to 25.50
Rerolling rails	28.00 to 32.00
Miscellaneous rails	28.00 to 29.00
Angles & splice bars	29.00 to 30.00
Locomotive tires, cut	31.00 to 32.00
Cut bolster & side frames	31.00 to 32.00
Standard stl. car axles	30.00 to 32.50
No. 3 steel wheels	26.50 to 27.50
Couplers and knuckles	26.50 to 27.50
Rails, 2 ft and under	33.00 to 34.00
Malleable	24.00 to 26.00
No. 1 mach. cast.	28.00 to 30.00
No. 1 agricul. cast.	25.00 to 26.00
Heavy breakable cast.	21.00 to 22.50
RR. grate bars	18.00 to 19.00
Cast iron brake shoes	19.00 to 20.00
Cast iron car wheels	29.00 to 30.00

CINCINNATI

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	\$20.00 to \$21.00
No. 2 hvy. melting	19.00 to 20.00
No. 1 bundles	19.00 to 20.00
No. 2 bundles	17.00 to 18.00
Mach. shop turn.	9.00 to 10.00
Shoveling turn.	10.00 to 11.00
Cast iron borings	10.00 to 11.00
Mixed bor. & turn.	9.00 to 10.00
Low phos. 18 in. under	26.00 to 27.00
No. 1 cupola cast.	27.00 to 28.00
Hvy. breakable cast.	19.00 to 20.00
Rails 18 in. and under	32.50 to 33.50
Rails random length	22.00 to 23.00
Drop broken	30.00 to 31.00

BOSTON

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$14.50 to \$15.00
No. 2 hvy. melting	12.50
No. 1 bundles	13.00 to 13.50
No. 2 bundles	11.50 to 12.00
Bushelings	12.50
Shoveling turn.	10.00 to 10.50
Machine shop turn.	5.50 to 6.00
Mixed bor. and turn.	5.50 to 6.00
CI'n cast chem. bor.	11.00 to 13.00
No. 1 machinery cast.	25.00 to 28.00
No. 2 machinery cast.	24.00 to 26.00
Heavy breakable cast.	16.00 to 17.00
Stove plate	20.50 to 21.00

DETROIT

Per gross ton, brokers' buying prices f.o.b. cars:

No. 1 hvy. melting	\$16.50 to \$17.00
No. 2 hvy. melting	16.50 to 17.00
No. 1 bundles	16.50 to 17.00
New busheling	16.50 to 17.00
Flashings	16.50 to 17.00
Mach. shop turn.	10.00 to 11.00
Shoveling turn.	11.00 to 12.00
Cast iron borings	11.00 to 12.00
Mixed bor. & turn.	10.00 to 11.00
Low phos. plate	16.50 to 17.00
Heavy breakable cast.	13.00 to 17.00
Stove plate	16.00 to 17.00
Automotive cast.	23.00 to 25.00
No. 1 cupola cast.	19.00 to 23.00

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages.

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$21.50 to \$22.50
No. 2 hvy. melting	19.00 to 20.00
No. 1 bundles	21.50 to 22.50
No. 2 bundles	17.00 to 18.00
Mach. shop turn.	14.00 to 15.00
Shoveling turn.	16.00 to 17.00
Mixed bor. and turn.	12.00 to 13.00
Clean cast chemical bor.	21.00 to 22.00
No. 1 machinery cast.	27.00 to 29.00
No. 1 mixed yard cast.	25.00 to 27.00
Hvy. breakable cast.	27.00 to 28.00
Hvy. axle forge turn.	21.50 to 22.50
Low phos. acid openhearth	25.00 to 26.00
Low phos. electric furnace	27.00 to 28.00
Low phos. bundles	23.00 to 24.00
RR. steel wheels	29.00 to 30.00
RR. coil springs	29.00 to 30.00
RR. malleable	24.00 to 28.00
Cast iron carwheels	29.00 to 30.00

ST. LOUIS

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$21.00 to \$22.00
No. 2 hvy. melting	19.00 to 20.00
No. 2 bundled sheets	19.00 to 20.00
Mach. shop turn.	13.00 to 14.00
Shoveling turnings	13.00 to 14.00
Locomotive tires, uncut	23.00 to 24.00
Mis. std. sec. rails	23.00 to 24.00
Steel angle bars	26.00 to 27.00
Rails 3 ft and under	30.00 to 31.00
RR. steel springs	24.00 to 25.00
Steel car axles	25.00 to 27.00
Brake shoes	21.00 to 22.00
Malleable	23.00 to 24.00
Cast iron car wheels	30.00 to 31.00
No. 1 machinery cast.	31.00 to 32.00
Hvy. breakable cast.	20.00 to 21.00
Stove plate	24.00 to 25.00

BIRMINGHAM

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	20.00
No. 2 bundles	18.00
No. 1 busheling	20.00
Long turnings	14.00
Shoveling turnings	17.00
Cast iron borings	17.00
Bar crops and plate	\$24.00 to 25.00
Structural and plate	24.00 to 25.00
No. 1 cupola cast.	29.00 to 30.00
Stove plate	30.00 to 31.00
No. 1 RR. hvy. melt.	22.00 to 23.00
Steel axles	30.00 to 32.00
Scrap rails	23.00
Rerolling rails	27.00
Angles & splice bars	26.00 to 28.00
Rails 3 ft & under	25.00 to 26.00
Cast iron carwheels	29.00 to 30.00

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$23.50 to \$24.00
No. 2 hvy. melting	20.50 to 21.00
No. 1 bundles	23.50 to 24.00
No. 2 bundles	19.00 to 19.50
Mach. shop turn.	13.50 to 14.00
Short shov. turn.	18.50 to 19.00
Cast iron borings	18.50 to 19.00
Low phos.	24.50 to 25.00

NEW YORK

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$15.00 to \$16.00
No. 2 hvy. melting	13.00 to 14.00
No. 2 bundles	12.00 to 13.00
Mach. shop turn	7.50 to 8.00
Mixed bor. turn.	7.50 to 8.00
Shoveling turnings	9.50 to 10.00
Machinery cast.	22.00 to 23.00
Mixed yard cast.	20.00 to 21.00
Heavy breakable cast.	20.00 to 21.00
Charging box cast.	20.00 to 21.00
Unstrp. motor blks.	16.00 to 17.00
CI'n cast chem. bor.	12.00 to 14.00

BUFFALO

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$23.50 to \$24.50
No. 2 hvy. melting	20.50 to 21.50
No. 1 bundles	20.50 to 21.50
No. 2 bundles	18.50 to 19.50
No. 1 busheling	20.50 to 21.50
Mach. shop turn.	12.00 to 13.00
Shoveling turn.	16.00 to 17.00
Cast iron borings	16.00 to 17.00
Mixed bor. and turn.	16.00 to 17.00
Cupola cast.	29.00 to 30.00
Mixed yard cast.	27.00 to 28.00
Stove plate	27.00 to 28.00
Small indus. malleable	22.00 to 23.00
Low phos. plate	24.50 to 25.50
Scrap rails	27.00 to 28.00
Rails 3 ft & under	32.00 to 33.00
RR. steel wheels	29.00 to 30.00
RR. coil & leaf spgs.	29.00 to 30.00
RR. knuckles & coup.	29.00 to 30.00

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$22.50 to \$23.00
No. 2 hvy. melting	18.00 to 18.50
No. 1 bundles	22.50 to 23.00
No. 2 bundles	16.00 to 16.50
No. 1 busheling	22.50 to 23.00
Drop forge flashings	22.50 to 23.00
Mach. shop turn.	12.50 to 13.00
Shoveling turn.	18.00 to 18.50
Steel axle turn.	19.50 to 20.00
Cast iron borings	18.00 to 18.50
Mixed bor. & turn.	18.00 to 18.50
Low phos. 2 ft and under	23.50 to 24.00
No. 1 mach. cast	28.00 to 29.00
Malleable	25.00 to 26.00
RR. cast	28.00 to 29.00
Railroad grate bars	20.00 to 21.00
Stove plate	20.00 to 21.00
RR. hvy. melting	23.50 to 24.00
Rails 3 ft and under	32.00 to 33.00
Rails 18 in. and under	33.00 to 34.00

SAN FRANCISCO

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	18.00
No. 1 bales	16.00
No. 2 bales	16.00
No. 3 bales	13.00
Mach. shop turn.	12.00
Elec. fur. 1 ft under	30.00
No. 1 cupola cast.	\$30.00 to 35.00
RR. hvy. melting	20.00
Rails	23.00

LOS ANGELES

Per gross ton delivered to consumer:

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	18.00
No. 1 bales	16.00
No. 2 bales	16.00
No. 3 bales	13.00
Mach. shop turn.	12.00
Elec. fur. 1 ft under	30.00
No. 1 cupola cast.	\$30.00 to 35.00
RR. hvy. melting	20.00

SEATTLE

Per gross ton delivered to consumer:

No. 1 & No. 2 hvy melt	\$20.00
No. 1 & No. 2 bales	16.00
No. 3 bales	13.00
Elec. fur. 1 ft and under	30.00
No. 1 cupola cast.	\$28.00 to 30.00
RR. hvy. melting	20.00

HAMILTON, ONT.

Per gross ton delivered to consumer:
Cast grades f.o.b. shipping point:

Heavy melting	\$23.00*
No. 1 bundles	23.00*
No. 2 bundles	22.50*
Mechanical bundles	19.00*
Mixed steel scrap	17.00*
Mixed borings and turnings	23.00*
Rails, remelting	26.00*
Rails, rerolling	17.50*
Bushelings	21.00*
Bushelings, new fact, prop'd	16.00*
Bushelings, new fact, unprop'd	17.00*
Short steel turnings	50.00
No. 1 cast.	\$48.00 to 50.00
No. 2 cast.	44.00 to 45.00

*Ceiling Price.

*For the Purchase or Sale of
Iron and Steel Scrap...*

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices . .

Price advances over previous week are printed in Heavy Type; declines appear in *italics*.

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(cents per pound)	1949	1949	1949	1948
Hot-rolled sheets	3.25	3.25	3.26	2.775
Cold-rolled sheets	4.00	4.00	4.00	3.495
Galvanized sheets (10 ga)	4.40	4.40	4.40	3.913
Hot-rolled strip	3.25	3.25	3.265	2.775
Cold-rolled strip	4.038	4.038	4.063	3.535
Plates	3.40	3.42	3.42	2.93
Plates wrought iron	7.85	7.85	7.85	7.25
Stains C-R strip (No. 302)	33.25	33.25	33.25	30.50

Tin and Terneplate:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(dollars per base box)				
Tinplate (1.50 lb) cokes	\$7.75	\$7.75	\$7.75	\$6.70
Tinplate, electro (0.50 lb)	6.70	6.70	6.70	5.90
Special coated mfg. ternes	6.65	6.65	6.65	5.80

Bars and Shapes:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(cents per pound)				
Merchant bars	3.35	3.35	3.35	2.875
Cold-finished bars	3.995	3.995	3.995	3.483
Alloy bars	3.75	3.75	3.75	3.213
Structural shapes	3.25	3.25	3.25	2.767
Stainless bars (No. 302)	28.50	28.50	28.50	26.00
Wrought iron bars	9.50	9.50	9.50	8.65

Wire:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(cents per pound)				
Bright wire	4.15	4.15	4.15	3.608

Rails:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(dollars per 100 lb)				
Heavy rails	\$3.20	\$3.20	\$3.20	\$2.725
Light rails	3.55	3.55	3.55	3.05

Semifinished Steel:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(dollars per net ton)				
Rerolling billets	\$52.00	\$52.00	\$52.00	\$45.00
Slabs, rerolling	52.00	52.00	52.00	45.00
Forging billets	61.00	61.00	61.00	54.00
Alloy blooms, billets, slabs	63.00	63.00	63.00	66.00

Wire rod and Skelp:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(cents per pound)				
Wire rods	3.40	3.40	3.40	3.133
Skelp	3.25	3.25	3.25	2.888

Pig Iron:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(per gross ton)				
No. 2, foundry, Phila.	\$50.56	\$50.56	\$51.56	\$44.61
No. 2, Valley furnace	46.50	46.50	46.50	39.50
No. 2, Southern Cin'ti*	46.80	49.47	49.47	43.28
No. 2, Birmingham	40.71	43.38	43.38	37.38
No. 2, foundry, Chicago†	46.50	46.50	46.50	39.00
Basic del'd Philadelphia*	49.74	49.74	50.76	44.11
Basic, Valley furnace	46.00	46.00	46.00	39.00
Malleable, Chicago†	46.50	46.50	46.50	39.50
Malleable, Valley	46.50	46.50	46.50	39.50
Charcoal, Chicago	73.78	73.78	73.78	62.46
Ferromanganese†	161.40	161.40	161.40	145.00

* The switching charge for delivery to foundries in the Chicago district is \$1 per ton.
† Average of U. S. prices quoted on Ferroalloy page.
‡ Does not include interim increase on total freight charges, effective Jan. 11, 1949.

Scrap	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(per gross ton)				
Heavy melt'g steel, P'gh.	\$23.75	\$23.75	\$26.50	\$40.25
Heavy melt'g steel, Phila.	22.00	22.00	24.50	41.75
Heavy melt'g steel, Ch'go	23.50	23.00	27.50	39.25
No. 1, hy. comp. sh't, Det.	16.75	16.75	23.50	35.50
Low phos. Young'n.	24.75	24.75	30.50	45.25
No. 1, cast, Pittsburgh	28.50	29.50	39.00	64.00
No. 1, cast, Philadelphia	28.00	28.00	30.50	65.50
No. 1, cast, Chicago	29.00	27.00	31.00	71.50

Coke, Connellsville:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(per net ton at oven)				
Furnace coke, prompt	\$14.50	\$14.50	\$14.50	\$12.50
Foundry coke, prompt	16.50	16.50	16.50	14.00

Nonferrous Metals:	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
(cents per pound to large buyers)				
Copper, electro, Conn.	18.50	20.00	23.375	21.50
Copper, Lake Conn.	23.625	23.625	23.625	21.625
Tin, Grade A, New York	\$1.03	\$1.03	\$1.03	94.00
Zinc, East St. Louis	12.50	13.00	16.00	12.00
Lead, St. Louis	14.80	14.80	15.80	17.30
Aluminum, virgin	17.00	17.00	17.00	15.00
Nickel, electrolytic	42.93	42.93	42.93	36.56
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	38.50	38.50	38.50	33.00

Starting with the issue of Apr. 22, 1943, the weighted finished steel index was revised for the years 1941, 1942, and 1943. See explanation of the change on p. 90 of the Apr. 22, 1943, issue. Index revised to a quarterly basis as of Nov. 16, 1944; for details see p. 98 of that issue. The finished steel composite price for the current quarter is an estimate based on finished steel shipments for the previous quarter. This figure will be revised when shipments for this quarter are compiled.

Composite Prices . .

FINISHED STEEL (Base Price)	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
May 3, 1949	3.74583¢			
One week ago	3.74887¢			
One month ago	3.75197¢			
One year ago	3.25116¢			

PIG IRON	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
May 3, 1949	\$46.13			
One week ago	\$46.57			
One month ago	\$46.74			
One year ago	\$40.11			

HIGH	LOW	HIGH	LOW
1949.... 3.76049¢ Jan. 1	3.74583¢ May 3	46.82 Jan. 4	46.13 May 3
1948.... 3.75700¢ July 27	3.22566¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6
1947.... 3.19541¢ Oct. 7	2.87118¢ Jan. 7	37.98 Dec. 30	30.14 Jan. 7
1946.... 2.83599¢ Dec. 31	2.54490¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1
1945.... 2.44104¢ Oct. 2	2.54490¢ Jan. 2	25.37 Oct. 23	23.61 Jan. 2
1944.... 2.30837¢ Sept. 5	2.21189¢ Oct. 5	\$23.61	\$23.61
1943.... 2.29176¢	2.29176¢	23.61	23.61
1942.... 2.28249¢	2.28249¢	23.61	23.61
1941.... 2.43078¢	2.43078¢	\$23.61 Mar. 20	\$23.45 Jan. 2
1940.... 2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2
1939.... 2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12
1938.... 2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6
1937.... 2.58414¢ Mar. 9	2.32263¢ Jan. 4	23.25 Mar. 9	20.25 Feb. 16
1936.... 2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11
1935.... 2.07642¢ Oct. 1	2.06492¢ Jan. 8	18.84 Nov. 5	17.83 May 14
1934.... 2.15367¢ Apr. 24	1.95757¢ Jan. 2	17.90 May 1	16.90 Jan. 27
1933.... 1.95578¢ Oct. 3	1.75836¢ May 2	16.90 Dec. 5	13.56 Jan. 3
1932.... 1.89196¢ July 5	1.83901¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6
1931.... 1.99626¢ Jan. 13	1.86586¢ Dec. 29	15.90 Jan. 6	14.79 Dec. 15
1929.... 2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17

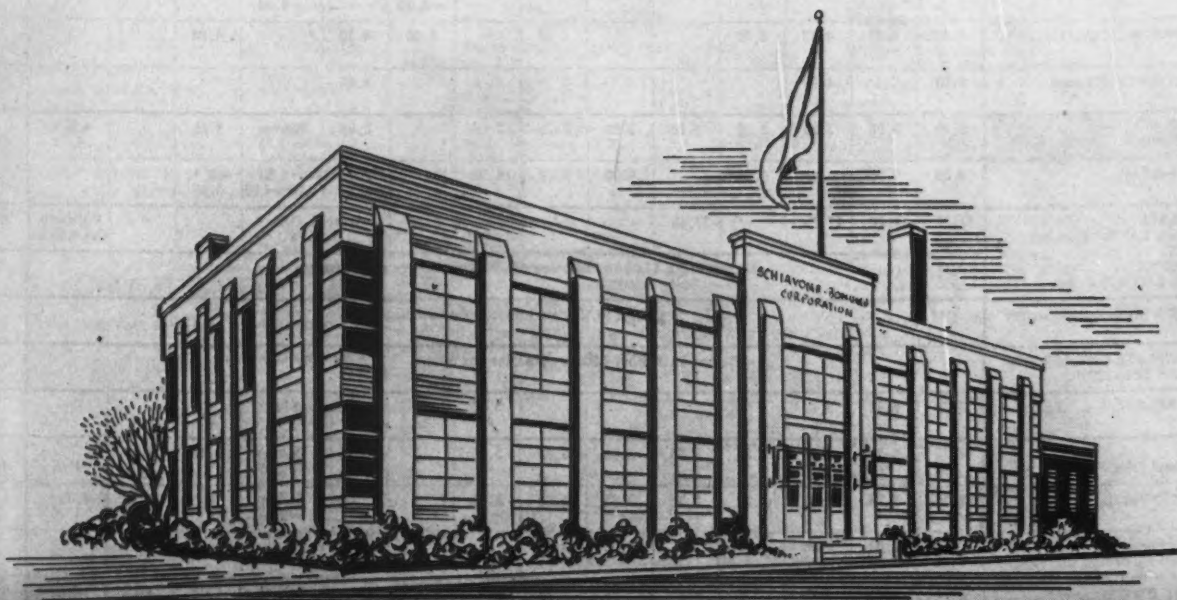
Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue.

SCRAP STEEL	May 3, 1949	Apr. 26, 1949	Apr. 5, 1949	May 4, 1948
May 3, 1949	\$23.08			
One week ago	\$22.92			
One month ago	\$26.17			
One year ago	\$40.42			

Based on No. 1 heavy melting steel scrap quotations to consumers at Pittsburgh, Philadelphia and Chicago.

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Iron and Steel Prices . . .

Steel prices shown here are f.o.b. producing points in cents per pound unless otherwise indicated. Extras apply. (1) Commercial quality sheet grade; prices, 0.25¢ above base. (2) Commercial quality grade. (3) Widths up to 12-in. inclusive. (4) 0.25 carbon and less. (5) Cokes, 1.25 lb, deduct 25¢ per base box. (6) 18 gage and heavier. (7) For straight length material only from producers to fabricators. (8) Also shafting. For quantities of 40,000 lb and over. (9) Carload lot in manufacturing trade. (10) Hollowware enameling, gages 29 to 31 only. (11) Produced to dimensional tolerances in AISI Manual Sec. 6. (12) Slab prices subject to negotiation in most cases. (13) San Francisco only. (14) Los Angeles only. (15) San Francisco and Los Angeles only. (16) Seattle only. (17) Seattle and Los Angeles only.

PRODUCTS	Base prices at producing points apply to the sizes and grades produced in these areas														
	Pitts- burgh	Chicago	Gary	Cleve- land	Birm- ingham	Buffalo	Youngs- town	Spar- rows Point	Granite City	Middle- town, Ohio		Detroit	Johns- town	Seattle, S. Frisco, Los Angeles	Fontana
INGOTS															
Carbon forging	\$50.00														
Alloy	\$51.00						(per net ton)								
BILLETS, BLOOMS, SLABS															
Carbon, rerolling ^{1,2}	\$52.00				\$52.00	\$52.00	(per net ton)						\$52.00		
Carbon forging billets	\$61.00	\$61.00	\$61.00	\$61.00	\$61.00	\$61.00	(per net ton)						\$61.00		
Alloy	\$63.00	\$63.00				\$63.00	(Bethlehem, Canton, Massillon = \$63.00) (per net ton)								
PIPE SKELP	3.25						3.25				Warren = 3.25				
WIRE RODS	3.40	3.40		3.40	3.40		3.40	3.50			Worcester 3.70		3.40	4.05 ¹³ 4.20 ¹⁴	
SHEETS															
Hot-rolled ⁶	3.25	3.25	3.25	3.25	3.25	3.25 (Conshohocken, Pa. 3.75)	3.25	3.25		Warren, Ashland = 3.25		3.45		3.95 ¹⁵	4.15
Cold-rolled ¹	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.20	4.00	Warren 4.00	4.20		Pittsburg, Cal. 4.95	
Galvanized (10 gage)	4.40	4.40	4.40		4.40			4.40	Canton = 4.40	4.40	Ashland = 4.40			5.15 ¹⁵	
Enameling (12 gage)	4.40	4.40	4.40	4.40			4.40		4.60	4.40		4.70			
Long ternes ² (10 gage)	4.80		4.80							4.80					
STRIP															
Hot-rolled ³	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25		3.25	Warren = 3.25	3.45		4.00 to 4.25	4.05
Cold-rolled ⁴	4.00	4.15		4.00		4.00	4.00	4.00		New Haven 4.50 Warren = 4.00 to 4.25		4.20 to 4.50			5.55
TINPLATE															
Cokes, 1.50 lb. ⁵ base box	\$7.75	\$7.75	\$7.75		\$7.85			\$7.85	\$7.95	Warren, Ohio = \$7.75				Pittsburg, Cal. = \$8.50	
Electrolytic 0.25, 0.50, 0.75 lb. box	Deduct \$1.30, \$1.05 and 75¢ respectively from 1.50 lb. coke base box price														
TERNES MFG., special coated	Deduct \$1.10 from 1.50 lb. coke base box price														
BLACKPLATE CANMAKING 55 to 128 lb.	Deduct \$2.00 from 1.50 lb. coke base box price														
BLACKPLATE, h.e., 29 ga. ¹⁰	5.30	5.30	5.30					5.40		Warren, Ohio = 5.30					
BARS															
Carbon Steel	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35		3.35	Canton = 3.35	3.55	3.35	4.05	4.00
Reinforcing (billet) ⁷	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35			Canton = 3.35		3.35	4.05 to 4.10	4.00
Cold-finished ⁸	3.95 to 4.00	4.00	4.00	4.00		4.00	4.00					4.30			
Alloy, hot-rolled	3.75	3.75	3.75			3.75	3.75		Bethlehem, Canton, Massillon = 3.75			4.05	3.75	4.80 ¹⁴	4.75
Alloy cold-drawn	4.65	4.65	4.65	4.65		4.65	4.65		Massillon = 4.65	Worcester 4.95					
PLATE															
Carbon steel ¹¹	3.40	3.40	3.40	3.40	3.40	3.45 Cons	3.40	3.45	Coatesville = 3.50, Claymont = 3.65 Geneva = 3.40, Harrisburg = 3.95			3.65	3.45	4.30 ¹⁶	5.30
Floor plates	4.55	4.55		4.55					Conshohocken = 4.55						
Alloy	4.40	4.40							Coatesville = 4.50						
SHAPES, Structural	3.25	3.25	3.25		3.25	3.30			Bethlehem = 3.30, Geneva, Utah = 3.25				3.30	3.80 to 3.90 ¹⁶	3.80
MANUFACTURERS' WIRE ⁹ Bright	4.15	4.15		4.15	4.15		4.15	4.25	Duluth = 4.15, Worcester = 4.45				4.15	5.15 ¹³	
Spring (high carbon)	5.20	5.20		5.20				5.30	Worcester = 5.50 New Haven, Trenton = 5.50				5.20	Duluth = 5.20-5.15	
PILING, Steel sheet	4.05	4.05				4.05									

PRICES

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

Product	Chromium Nickel							Straight Chromium		
	301	302	303	304	316	321	347	410	416	430
Ingot, re-rolling	12.75	13.50	15.00	15.50	22.75	18.25	20.00	11.25	13.75	11.50
Slabs, billets, re-rolling	17.00	18.25	20.25	19.25	30.25	24.50	26.75	15.00	18.50	15.25
Forg. discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	38.50	41.00	24.50	25.00	25.00
Billets, forging	24.25	24.25	26.25	25.50	39.00	29.00	32.75	19.50	20.00	20.00
Bars, wire, structurals	28.50	28.50	31.00	30.00	46.00	34.00	38.50	23.00	23.50	23.50
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	28.00	26.50-27.00	26.50
Sheets	37.50	37.50	39.50	39.50	53.00	45.50	50.00	33.00	33.50	35.50
Strip, hot-rolled	24.25	25.75	30.00	27.75	46.00	34.50	38.75	21.25	28.00	21.75
Strip, cold-rolled	30.50	33.00	36.50	35.00	55.00	44.50	48.50	27.00	33.50	27.50

ELECTRODES

Cents per lb. f.o.b. plant, threaded electrodes with nipples, unboxed

Diameter in in.	Length in in.	
Graphite		
17, 18, 20	60, 72	16.00¢
8 to 16	48, 60, 72	16.50¢
7	48, 60	17.75¢
6	48, 60	19.00¢
4, 5	40	19.50¢
3	40	20.50¢
2½	24, 30	21.00¢
2	24, 30	23.00¢
Carbon		
40	100, 110	7.50¢
35	65, 110	7.50¢
30	65, 84, 110	7.50¢
24	72 to 104	7.50¢
17 to 20	84, 90	7.50¢
14	60, 72	8.00¢
10, 12	60	8.25¢
8	60	8.50¢

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	90.5¢
18	4	1	—	5	\$1.42
18	4	2	—	—	\$1.025
1.5	4	1.5	8	—	65¢
6	4	2	6	—	69.5¢
High-carbon-chromium					52¢
Oil hardened manganese					29¢
Special carbon					26.5¢
Extra carbon					22¢
Regular carbon					19¢
Warehouse prices on and east of Mississippi are 2½¢ per lb higher. West of Mississippi 4½¢ higher.					

ELECTRICAL SHEETS

24 gage, HR cut lengths, f.o.b. mill

	Cents per lb
Armature	5.45
Electrical	5.95
Motor	6.70
Dynamo	7.50
Transformer 72	8.05
Transformer 65	8.60 to 10.60
Transformer 58	9.30 to 11.30
Transformer 52	10.10

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	\$3.20†
Joint bars, 100 lb	4.25
Light rails (from billets) per 100 lb	3.55

Base Price cents per lb

Track spikes	5.35
Axles	5.20
Screw spikes	8.00
Tie plates	4.05
Tie plates, Pittsburgh, Calif.*	4.20
Track bolts, untreated	8.25
Track bolts, heat treated, to rail-roads	8.50

*Seattle, add 30¢.
†CF&I, \$3.30.

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.00¢
0.41 to 0.60 carbon	5.50¢
0.61 to 0.80 carbon	6.10¢
0.81 to 1.05 carbon	8.05¢
1.06 to 1.35 carbon	10.35¢
Worcester, add 0.30¢.	

CLAD STEEL

Base prices, cents per pound

Stainless clad	Plate	Sheet
No. 304, 20 pct. f.o.b. Coatesville, Pa.	*26.50	
Washington, Pa.	*26.50	*22.50
Claymont, Del.	*26.50	
Conshohocken, Pa.		*22.50
Nickel-clad		
10 pct. f.o.b. Coatesville, Pa.	27.50	
Inconel-clad		
10 pct. f.o.b. Coatesville.	36.00	
Monel-clad		
10 pct. f.o.b. Coatesville.	29.00	
Aluminized steel sheets		
Hot dip, f.o.b. Butler, Pa.		7.75

*Includes annealing and pickling, or sandblasting.

MERCHANT WIRE PRODUCTS

To the dealer, f.o.b. mill

	Base Column	Pittsburg, Calif.
Standard & coated nails*	103	123
Galvanized nails*	103	123
Woven wire fence†	109	132
Fence posts, carload††	114	...
Single loop bale ties	106	*130
Galvanized barbed wire**	123	143
Twisted barbless wire...	123	...

*Pgh., Chi., Duluth; Worcester, 6 columns higher. †15½ gage and heavier.
** On 50 rod spools, in carloads. †† Duluth only.

	Base per 100 lb	Pittsburg, Calif.
Annealed fence wire†	\$4.80	\$5.75
Annealed, galv. fencing†	5.25	6.20
Cut nails, carload††	6.75	...

† Add 30¢ at Worcester; 10¢ at Sparrows Pt.
†† Less 20¢ to jobbers.

HIGH STRENGTH, LOW ALLOY STEELS

Mill base prices, cents per pound

Steel	Aldecor	Corten	Double Strength No. 1	Dynalloy	Hi Steel	Mayari R	Otiscoloy	Yoloy	NAX High Tensile
Producer	Republic	Carnegie-Illinois, Republic	Republic	Alan Wood	Inland	Bethlehem	Jones & Laughlin	Youngstown Sheet & Tube	Great Lakes Steel
Plates	5.20	5.20	5.20	5.30	5.20	5.30	5.20	5.20	5.65
Sheets									
Hot-rolled	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	5.25
Cold-rolled	6.05	6.05	6.05	...	6.05	6.05	6.05	6.05	6.35
Galvanized	...	6.75	...	...	...	6.75	...	...	...
Strip									
Hot-rolled	4.95	4.95	4.95	...	4.95	4.95	4.95	4.95	5.25
Cold-rolled	...	...	6.05	...	...	6.05	6.05	6.05	6.35
Shapes	...	4.95	...	...	4.95	5.05	4.95	4.95	...
Beams	...	4.95	...	...	...	...	...	...	...
Bars									
Hot-rolled	5.10	5.10	5.10	...	5.10	5.10	5.10	5.10	5.40
Bar shapes	...	5.10	...	...	5.10	5.10	5.10	5.10	...

PRICES

PIPE AND TUBING

Base discounts, f.o.b. mills.
Base price, \$200.00 per net ton.

STANDARD, THREADED AND COUPLED

Steel, butt weld	Black	Galv.
1/2-in.	43 to 41	25 to 23
3/4-in.	46 to 44	29 to 27
1-in.	48 1/2 to 46 1/2	32 to 30
1 1/4-in.	49 to 47	32 1/2 to 30 1/2
1 1/2-in.	49 1/2 to 47 1/2	33 to 31
2-in.	50 to 48	33 1/2 to 31 1/2
2 1/2 to 3-in.	50 1/2 to 48 1/2	34 to 32
Steel, lap weld		
2-in.	39 1/2	24 1/2 to 22 1/2
2 1/2 to 3-in.	43 1/2 to 42 1/2	26 1/2 to 25 1/2
3 1/2 to 6-in.	46 1/2 to 42 1/2	29 1/2 to 25 1/2
Steel, seamless		
2-in.	38 1/2 to 27	21 1/2 to 10
2 1/2 to 3-in.	41 1/2 to 32 1/2	24 1/2 to 15 1/2
3 1/2 to 6-in.	43 1/2 to 38 1/2	26 1/2 to 21 1/2
Wrought iron, butt weld		
1/2-in.	+20 1/2	+47 1/2
3/4-in.	+10 1/2	+36 1/2
1 & 1 1/4 in.	+4 1/2	+27 1/2
2-in.	— 1 1/2	+24
3-in.	— 2	+23 1/2
Wrought iron, lap weld		
2-in.	+7 1/2	+31 1/2
2 1/2 to 3 1/2-in.	+5	+27
4-in.	list	+21
4 1/2 to 8-in.	+2	+22 1/2

EXTRA STRONG, PLAIN ENDS

Steel, butt weld		
1/2-in.	42 to 40	25 1/2 to 23 1/2
3/4-in.	46 to 44	29 1/2 to 27 1/2
1-in.	48 to 46	32 1/2 to 30 1/2
1 1/4-in.	48 1/2 to 46 1/2	33 to 31
1 1/2-in.	49 to 47	33 1/2 to 31 1/2
2-in.	49 1/2 to 47 1/2	34 to 33
2 1/2 to 3-in.	50 to 48	34 1/2 to 32 1/2
Steel, lap weld		
2-in.	39 1/2 to 38 1/2	23 1/2 to 22 1/2
2 1/2 to 3-in.	44 1/2 to 42 1/2	28 1/2 to 26 1/2
3 1/2 to 6-in.	48 to 44	32 to 30
Steel, seamless		
2-in.	37 1/2 to 32 1/2	21 1/2 to 16 1/2
2 1/2 to 3-in.	41 1/2 to 36 1/2	25 1/2 to 21 1/2
3 1/2 to 6-in.	45	29
Wrought iron, butt weld		
1/2-in.	+16	+41 1/2
3/4-in.	+9 1/2	+34 1/2
1 to 2-in.	— 1 1/2	+23 1/2
Wrought iron, lap weld		
2-in.	+4 1/2	+28
2 1/2 to 4-in.	+5	+16 1/2
4 1/2 to 6-in.	— 1	+21

For threads only, butt weld, lap weld and seamless pipe, one point higher discount (lower price) applies. For plain ends, butt weld, lap weld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lap weld and seamless 3 1/4-in. and larger four points higher discount (lower price) applies. On butt weld and lap weld steel pipe, jobbers are granted a discount of 5 pct. On l.c. shipments, prices are determined by adding 25 pct and 30 pct and the carload freight rate to the base card.

BOILER TUBES

Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut length 4 to 24 ft inclusive.

OD Gage	Seamless	Electric Weld
in. BWG	H.R.	H.R. C.D.
2	13	22.56 18.60 21.89
2 1/2	12	25.79 30.33 25.02 29.41
3	12	28.68 33.76 27.82 32.74
3 1/2	11	35.85 42.20 34.78 40.94
4	10	44.51 52.35 43.17 50.78

CAST IRON WATER PIPE

	Per net ton
6 to 24-in., del'd Chicago	\$95.70
6 to 24-in., del'd N. Y.	92.50 to 97.40
6 to 24-in., Birmingham	82.50
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less	109.30
Class "A" and gas pipe, \$5 extra 4-in. pipe is \$5 a ton above 6-in.	

BOLTS, NUTS, RIVETS, SET SCREWS

Consumer Prices

(Bolts and nuts f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago)

Base discount less case lots

Machine and Carriage Bolts

	Pct Off List
1/2 in. & smaller x 6 in. & shorter	35
9/16 & 5/8 in. x 6 in. & shorter	37
3/4 in. & larger x 6 in. & shorter	34
All diam, longer than 6 in.	30
Lag, all diam over 6 in. longer	35
Lag, all diam x 6 in. & shorter	37
Plow bolts	47

Nuts, Cold Punched or Hot Pressed

(Hexagon or Square)

1/2 in. and smaller	35
9/16 to 1 in. inclusive	34
1 1/4 to 1 1/2 in. inclusive	32
1 1/2 in. and larger	27
On above bolts and nuts, excepting plow bolts, additional allowance of 15 pct for full container quantities. There is an additional 5 pct allowance for carload shipments.	

Semifinished Hexagon Nuts

	USS	SAE
7/16 in. and smaller	41	
1/2 in. and smaller	38	
1/2 in. through 1 in.		39
9/16 in. through 1 in.	37	
1 1/8 in. through 1 1/4 in.	35	37
1 1/2 in. and larger	28	
In full case lots, 15 pct additional discount.		

Stove Bolts

Packages, nuts separate	\$61.75
In bulk	70.00

Large Rivets

	(1/2 in. and larger)
	Base per 100 lb
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	\$6.75
F.o.b. Lebanon, Pa.	6.75

Small Rivets

	(7/16 in. and smaller)
	Pct off List
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	48

Cap and Set Screws

	Pct Off List
Hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in., SAE 1020, bright	46
1/2 to 1 in. x 6 in., SAE (1035), heat treated	35
Milled studs	19
Flat head cap screws, listed sizes	5
Fillister head cap, listed sizes	28

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill.

	Base price per net ton
Effective CaF ₂ Content:	
70% or more	\$37.00
60% or less	34.00

LAKE SUPERIOR ORES

(51.50% Fe, Natural Content, Delivered Lower Lake Ports)

	Per Gross Ton
Old range, bessemer	\$7.60
Old range, nonbessemer	7.45
Mesabi, bessemer	7.35
Mesabi, nonbessemer	7.20
High phosphorus	7.20
After Dec. 31, 1948, increases or decreases in Upper Lake freight, dock and handling charges and taxes thereon to be for the buyers' account.	

METAL POWDERS

Per pound, f.o.b. shipping point, in lots, for minus 100 mesh.

Swedish sponge iron a.l.f.	7.9¢ to 9.0¢
New York, ocean bags	
Domestic sponge iron, 98+ % Fe, carload lots	9.0¢ to 16.0¢
Electrolytic iron, annealed, 99.5+ % Fe	31.5¢ to 39.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+ % Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+ % Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 microns, 98%, 99.8% + Fe	90.0¢ to \$1.75
Aluminum	31.00¢
Antimony	51.17¢
Brass, 10 ton lots	27.25 to 37.25¢
Copper, electrolytic	33.625¢
Copper, reduced	34.25¢
Cadmium	\$2.40
Chromium, electrolytic, 99% min.	\$3.50
Lead	23.00¢
Manganese	60.00¢
Molybdenum, 99%	\$2.65
Nickel, unannealed	67.00¢
Nickel, spherical, minus 30 mesh, unannealed	68.00¢
Silicon	34.00¢
Solder powder	8.5¢ plus metal cost
Stainless steel, 302	75.0¢
Tin	\$1.15¢
Tungsten, 99%	\$2.40
Zinc, 10 ton lots	16.25 to 17.75

COKE

	Net Ton
Furnace, beehive (f.o.b. oven)	
Connellsville, Pa.	\$14.00 to \$15.00
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.00 to \$17.00
Foundry, Byproduct	
Buffalo, del'd	\$22.95
Chicago, f.o.b.	20.40
Detroit, f.o.b.	19.40
New England, del'd	22.70
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	20.45
Swedeland, Pa., f.o.b.	20.40
Painesville, Ohio, f.o.b.	20.90
Erie, del'd	\$21.50 to 23.50
Cleveland, del'd	22.45
Cincinnati, del'd	21.50
St. Paul, f.o.b.	23.50
St. Louis, del'd	20.98
Birmingham, del'd	18.66

REFRACTORIES

(F.o.b. Works)

	Carloads, Per 1000
Fire Clay Brick	
First quality, Pa., Md., Ky., Mo., Ill. (except Salina, Pa., add \$5)	\$48.00
No. 1 Ohio	74.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	74.00
No. 2 Ohio	66.00
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50)	11.50

	Per Net Ton
Silica Brick	
Mt. Union, Pa., Ensley, Ala.	\$80.00
Childs, Pa.	84.00
Hays, Pa.	85.00
Chicago District	89.00
Western, Utah and Calif.	95.00
Super Duty, Hays, Pa., Athens, Tex.	95.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	\$13.75 to 14.00
Silica cement, net ton, bulk, Hays, Pa.	16.00
Silica cement, net ton, bulk, Ensley, Ala.	15.00
Silica cement, net ton, bulk, Chicago District	14.75
Silica cement, net ton, bulk, Utah and Calif.	21.00

	Per Net Ton
Chrome Brick	
Standard chemically bonded, Balt., Chester	\$69.00
Magnesite Brick	
Standard, Balt. and Chester	\$91.00
Chemically bonded, Balt. and Chester	80.00

	Per Gross Ton
Grain Magnesite	
Std. 3/4-in. grains	
Domestic, f.o.b. Balt. and Chester, in bulk, fines removed	\$56.50
Domestic, f.o.b. Chewelah, Wash., in bulk with fines	\$30.50 to 31.00
in sacks with fines	35.00 to 35.50

	Per Net Ton
Dead Burned Dolomite	
F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk, Midwest, add 10¢; Missouri Valley, add 20¢	\$12.2

PRICES

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb.
(Metropolitan area delivery, add 15¢ to base price except Cincinnati and
New Orleans (*), add 10¢; New York, add 20¢.)

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140-50 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140-50 Ann.
Baltimore.....	5.31	6.21-	6.95-	5.37	....	5.56	5.38	5.42	6.16	....	10.10	....	....
Birmingham.....	5.05	....	6.45	5.05	6.68	5.25	5.00	5.00	6.68	....	....	....	....
Boston.....	5.55	6.45-	7.71-	5.65-	6.75	5.80	5.42	5.82	6.27	9.64-	10.04-	11.23-	11.47-
Buffalo.....	.85	6.75	7.85	5.95	....	5.35	5.10	5.05-	5.90	9.82	10.07	11.27	11.52
Chicago.....	4.85	5.00-	7.26-	5.29-	6.35-	5.35	5.10	5.05-	5.90	9.70-	9.95-	11.15-	11.40-
Cincinnati.....	5.16-	5.75	7.70	5.65	7.27	5.35	5.10	5.05-	5.90	9.73	9.98	11.18	11.43
Cleveland.....	5.28*	6.75	7.10	4.85	6.68	5.35	5.10	5.05-	5.90	9.73	9.98	11.18	11.43
Detroit.....	5.16-	5.75	7.70	5.65	7.27	5.35	5.10	5.05-	5.90	9.73	9.98	11.18	11.43
Houston.....	5.32	6.07-	7.53-	5.28-	6.27-	5.35	5.10	5.05-	5.90	9.73	9.98	11.18	11.43
Indianapolis.....	6.50-	6.18	7.58	5.47	6.58	5.35	5.10	5.05-	5.90	9.73	9.98	11.18	11.43
Los Angeles.....	5.15	....	8.50	7.00	....	6.70	6.55	6.65	7.60	10.30	10.25	11.45	11.70
Memphis.....	5.03	6.05	7.39	5.15	6.25	5.40	5.20	5.35	6.50	....	....	....	....
Milwaukee.....	5.95*	6.75*	....	6.15*	....	6.15*	5.95*	5.95*	....	....	....	....	....
New Orleans.....	5.40-	6.46	7.71-	5.62-	....	5.70-	5.33-	5.57-	6.41-	9.73-	9.98-	11.18-	11.43-
New York.....	5.51	7.86	....	5.98	....	6.00	5.61	5.80	6.61	9.93	10.18	11.38	11.63
Norfolk.....	5.90	....	....	6.05	....	6.05	6.05	6.05	7.05	....	....	....	....
Omaha.....	5.98	....	9.89	5.98	....	6.23	6.03	6.03	6.83	....	....	....	....
Philadelphia.....	5.32	6.49	7.48-	5.60	6.69	5.53	5.25	5.55	6.34	9.64-	9.89	10.94	11.19
Pittsburgh.....	4.85	5.75 ¹	7.15	5.00	6.00	5.05	4.90	4.90	5.65	9.35	9.60	10.80	11.05
Portland.....	6.50*	8.00 ¹	8.80-	6.85*	....	6.30*	6.35*	6.35*	8.25 ¹⁴	10.50*	10.10*	....	....
Salt Lake City.....	6.60	....	9.20	....	....	....	....	....	....	....	....	....	....
San Francisco.....	7.05-	8.20	7.90-	7.10-	....	5.75-	6.65-	6.95-	7.40	....	....	....	....
Seattle.....	9.00	9.08	7.70	7.70	....	6.85	7.00	7.25	7.55-	....	....	....	....
St. Louis.....	6.15*	7.50 ²	8.10 ²	6.75*	8.25 ³	6.35*	5.90*	5.90*	7.55	10.90 ¹⁵	10.85 ¹⁵	12.40 ¹⁵	12.65 ¹⁵
St. Paul.....	6.20*	7.75 ²	7.65	6.55*	....	6.20-	6.15-	6.05*	8.00 ¹⁴	....	10.30 ¹⁵	....	12.00 ¹⁵
	7.10*	8.65 ²	9.15 ²	6.70*	....	6.35*	6.30*	6.20*	8.15 ¹⁴	....	10.35 ¹⁵	....	14.10 ¹⁵
	5.21-	6.12-	7.47-	5.22-	8.68	5.47-	5.27-	5.27-	6.07-	9.72	9.97	....	11.42
	5.37	6.27	7.52	5.97	....	5.62	5.42	5.92	6.22	....	....	....	....
	5.44	6.19-	7.74	5.44	6.82	5.64-	5.49	5.49	6.29	....	....	....	....

BASE QUANTITIES

Standard unless otherwise keyed on prices.

COLD-ROLLED:

Sheets, 400 to 1999 lb; strip, extras on all quantities bars 1000 lb and over.

ALLOY BARS:

1000 to 1999 lb.

GALVANIZED SHEETS:

450 to 1499 lb.

EXCEPTIONS:

(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 800 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 lb and over; (6) 1000 lb and over; (7) 400 to 14,999 lb; (8) 400 lb and over; (9) 500 to 1999 lb; (10) 500 to 999 lb; (11) 400 to 2999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 4999 lb; (16) 4000 lb and over; (17) up to 1999 lb; (18) 1000 to 1499 lb.

PIG IRON PRICES

Dollars per gross ton. Delivered prices represent minimums. Delivered prices do not include 3 pct tax on freight nor the 6 pct increase on total freight charges in the Eastern Zone (5 pct Southern Zone, 4 pct Western Zone), effective Jan. 11, 1949.

PRODUCING POINT PRICES						DELIVERED PRICES (BASE GRADES)							
Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Consuming Point	Producing Point	Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem.....	48.00					Boston.....	Everett.....	\$0.50 Arb.		53.00	53.50		
Birmingham.....	38.88-42.88	39.38-43.38				Boston.....	Steelton.....	6.27	54.27	54.77	55.27	55.77	60.27
Buffalo.....	46.00	46.50	47.00			Boston.....	Steelton.....	5.48		53.98	54.48	54.98	59.48
Chicago.....	46.00	46.50	46.50	47.00		Brooklyn.....	Birmingham.....	6.09	44.97-	45.47-			
Cleveland.....	46.00	46.50	46.50	47.00	51.00	Cincinnati.....			48.97	49.47			
Douglas.....	46.00	46.50	46.50	47.00		Cincinnati.....	Birmingham.....	6.09	44.97-	45.47-			
Erie.....	46.00	46.50	46.50	47.00		Jersey City.....	Steelton.....	3.67		52.17	52.67	53.17	57.67
Everett.....		52.50	53.00			Los Angeles.....	Geneva-Ironton.....	7.13	53.13-	53.63-			
Granite City.....	47.90	48.40	48.90			Los Angeles.....	Geneva-Ironton.....	7.13	54.13	54.63			
Ironton, Utah.....	46.00-47.00	46.50-47.50				Manfield.....	Cleveland-Toledo.....	3.03	49.03	49.53	49.53	50.03	54.03
Lone Star, Texas.....		46.50†				Manfield.....	Cleveland-Toledo.....	3.03	49.03	49.53	49.53	50.03	54.03
Neville Island.....	46.00	46.50	46.50			Philadelphia.....	Bethlehem.....	2.17	50.17				
Geneva, Utah.....	46.00	46.50	46.50	47.00		Philadelphia.....	Bethlehem.....	2.17	50.17				
Sharpsville.....	46.00	46.50	46.50	47.00		Philadelphia.....	Swedeland.....	1.31	49.31	49.81	50.31	50.81	
Steelton.....	48.00	48.50	49.00	49.50	54.00	Philadelphia.....	Swedeland.....	1.31	49.31	49.81	50.31	50.81	
Struthers, Ohio.....	46.00	46.50	46.50	47.00		Philadelphia.....	Steelton.....	2.81	50.81	51.31	51.81	52.31	56.81
Swedeland.....	46.00	46.50	46.50	47.00		San Francisco.....	Geneva-Ironton.....	7.13	53.13-	53.63-			
Teledo.....	46.00	46.50	46.50	47.00		San Francisco.....	Geneva-Ironton.....	7.13	54.13	54.63			
Troy, N. Y.....					54.00	Seattle.....	Geneva-Ironton.....	7.13	53.13-	53.63-			
Youngstown.....	46.00	46.50	46.50			Seattle.....	Geneva-Ironton.....	7.13	54.13	54.63			
						St. Louis.....	Granite City.....	0.75 Arb.	48.65	49.15	49.65		
						Gulf Ports.....	Lone Star, Texas.....		50.50	51.00†			

Producing point prices are subject to switching charges: silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differential, a reduction of 35¢ per ton for phosphorus content of 0.70 pct and over manganese differential, a charge not to exceed 50¢ per ton for each 0.50 pct manganese content in excess

of 1.00 pct. \$2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.01 to 6.50 pct. C/L per g.t., f.o.b. Jackson, Ohio —\$59.50; f.o.b. Buffalo, \$60.75. Add \$1.00 per ton for each additional 0.50 pct Si up to 17 pct. Add 50¢ per ton for each 0.50 pct

Mn over 1.00 pct. Add \$1.00 per ton for 0.75 pct or more P. Bessemer ferroaluminum prices are \$1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus \$66.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, \$73.78. High phosphorus charcoal pig iron is not being produced.

FERROALLOY PRICES

Ferromanganese

78-82% Mn, Maximum contract base price, gross ton, lump size.	
F.o.b. Birmingham	\$174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont.	\$172
F.o.b. Johnstown, Pa.	\$174
F.o.b. Sheridan, Pa.	\$172
F.o.b. Etna, Pa.	\$175
\$2.00 for each 1% above 82% Mn; penalty, \$2.00 for each 1% below 78%.	
Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	
Carload, bulk	10.45
Ton lots	12.05
Less ton lots	12.95

Spiegeleisen

Contract prices gross ton, lump, f.o.b.	
16-19% Mn	19-21% Mn
3% max. Si	3% max. Si
Palmerton, Pa.	\$64.00
Pgh. or Chicago	\$65.00
	\$66.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.	
96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.	
Carload, packed	35.5
Ton lots	37.0

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.	
Carloads	28
Ton lots	30
Less ton lots	32

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, delivered.	
Carloads Ton Less	
0.07% max. C, 0.06% P, 90% Mn	25.25 27.10 28.30
0.10% max. C	24.75 26.60 27.80
0.15% max. C	24.25 26.10 27.30
0.30% max. C	23.75 25.60 26.80
0.50% max. C	23.25 25.10 26.30
0.75% max. C	
7.00% max. Si	20.25 22.10 23.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.	
Carload bulk	8.95
Ton lots	10.60
Briquet, contract basis, carlots, bulk delivered, per lb of briquet	
Ton lots	10.30
Less ton lots	11.90
	12.80

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, \$81.00; \$78.50 f.o.b. Niagara Falls: Electric furnace silvery iron is not being produced at Jackson. Add \$1.00 per ton for each additional 0.50% Si up to and including 18%. Add \$1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.	
96% Si, 2% Fe	20.70
97% Si, 1% Fe	21.10

Silicon Briquets

Contract price, cents per pound of briquet, bulk, delivered, 40% Si, 1 lb Si briquets.	
Carload, bulk	6.30
Ton lots	7.90
Less ton lots	8.80

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump size, bulk, in carloads, delivered.	
25% Si	18.50
50% Si	11.30
75% Si	13.50
85% Si	14.65
90-95% Si	16.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.	
Cast	Turnings Distilled
Ton lots	\$2.05 \$2.95 \$3.75
Less ton lots	2.40 3.30 4.55

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered.	
(65-72% Cr, 2% max. Si)	
0.06% C	28.75
0.10% C	28.25
0.15% C	28.00
0.20% C	27.75
0.50% C	27.50
1.00% C	27.25
2.00% C	27.00
65-69% Cr, 4-9% C	20.50
62-66% Cr, 4-6% C, 6-9% Si	21.35
Briquets—Contract price, cents per pound of briquet, delivered, 60% chromium.	
Carload, bulk	13.75
Ton lots	15.25
Less ton lots	16.15

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound chromium contained, lump size, delivered.	
High carbon type: 60.65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.	
Carloads	21.60
Ton lots	23.75
Less ton lots	25.25
Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.	
Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, cents per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.	
0.20% max. C	1.09
0.50% max. C	1.05
9.00% min. C	1.04

Calcium—Silicon

Contract price per lb of alloy, lump, delivered.	
30-33% Ca, 60.65% Si, 3.00% max. Fe.	
Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

Calcium—Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.	
16-20% Ca, 14-18% Mn, 53-59% Si.	
Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

CMSZ

Contract price, cents per pound of alloy, delivered.	
Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.	
Alloy 5: 50-56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.	
Ton lots	19.75
Less ton lots	21.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.	
Ton lots	15.75¢
Less ton lots	17.00¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Ton lots and carload packed	18.00¢
Less ton lots	19.50¢

SMZ

Contract price, cents per pound of alloy, delivered. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.	
Ton lots	17.25
Less ton lots	18.50

Other Ferroalloys

Ferrotingsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered	
	\$2.25
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained, V.	
Openhearth	\$2.96
Crucible	3.00
High speed steel (Primos)	3.10
Vanadium pentoxide, 88-92% V ₂ O ₅ contract basis, per pound contained V ₂ O ₅	
	\$1.20
Ferrochromium, 50-60% contract basis, delivered, per pound contained Cr.	
Ton lots	\$2.90
Less ton lots	2.95
Fermomolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo.	
	\$1.10
Calcium molybdate, 45-50%, f.o.b. Langeloth, Pa., per pound contained Mo.	
	96¢
Molybdenum oxide briquets, f.o.b. Langeloth, Pa.; bags, f.o.b. Wash., Pa., per pound contained Mo.	
	95¢
Ferrotitanium, 40%, regular grade, 10% C max., f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, ton lots, per lb contained Ti	
	\$1.28
Ferrotitanium, 25%, low carbon, f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, ton lots, per lb contained Ti	
	\$1.40
Less ton lots	1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, carloads, per net ton	
	\$160.00
Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton	
	\$65.00
10 tons to less carload	
	75.00
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per pound of alloy.	
Carload, bulk	6.60¢
Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	8.15¢
Ton lots	9.55¢
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk	11.00¢
Ton lots, packed	11.25¢
Less ton lots	11.75¢

Boron Agents

Contract prices per lb. of alloy, del.	
Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lot	
	\$1.20
F.o.b. Wash., Pa.; 100 lb. and over	
10 to 14% B.	.75
14 to 19% B.	1.20
19% min. B.	1.50
Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	\$1.67
Less ton lots	1.79
Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	\$1.80
Silicaz, contract basis, delivered.	
Ton lots	45.00¢
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
No. 1	93¢
No. 6	63¢
No. 79	45¢
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, f.o.b. Suspension Bridge, N. Y.; freight allowed.	
Ti 15-18%, B 1.00-1.50%, Si 2.5-3.0%, Al 1.0-2.0%.	
Ton lots, per pound	8.625¢
Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	
	\$6.25

McKee Reports Largest Profits in Co. History

Cleveland

••• Arthur G. McKee & Co. earned net profit for 1948 of \$2,150,372, more than twice that of any previous year, after federal and foreign taxes on income, H. E. Widdell, president, reported.

Mr. Widdell cited as factors contributing to record 1948 profits, lower postwar taxes on income, progress made during the year on the large backlog of work which was on hand at the start of 1948 and completion during the year of certain large projects taken several years ago on a lump sum basis, earlier completion of which has been delayed by shortages and slow deliveries of materials and equipment.

Mr. Widdell reported that "vast amounts of rehabilitation and additional plant construction is still required to meet the present world-wide demands of iron, steel and petroleum products.

"Recently there has been a tapering off in the construction activities in the heavy industries," he added.

High capital costs are apparently delaying some of the planned projects. Others are being postponed by the threat of higher corporation income taxes which would leave less earnings for capital outlays, he pointed out.

Arthur G. McKee & Co. has, however, obtained a dollar volume of new work for the first quarter of this year equal to about half that for the entire year of 1948, he reported.

ACF Boosts Output

New York

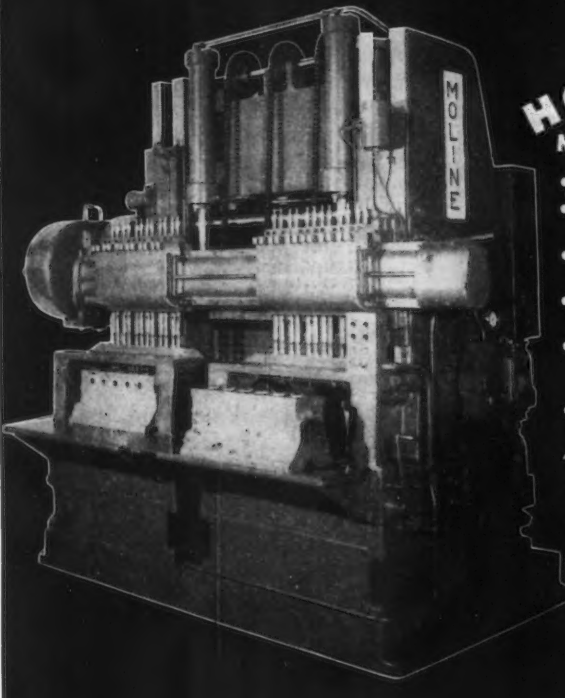
••• American Car and Foundry Co. recently announced that it produced 3133 railroad cars during the month of March, an all-time high for any single railroad equipment manufacturer since the year 1930. Of the total, 2995 units were domestic freight cars, 85 were for export purposes, and 53 were passenger cars for domestic service.

The previous all-time record, also established by ACF in April, 1930, was a total of 3264 railroad cars of various descriptions.

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NEWS OF INDUSTRY

Complains on Preferred Freight Rate Treatment

Salt Lake City

• • • Representatives of the non-ferrous metals industry complain that they are being thrown out of competitive balance with other metals by preferential freight rate treatment for iron, steel and aluminum. Their complaints were aired here last week at a regional Interstate Commerce Commission hearing on the railroads' application for a 13 pct general rate increase.

The transportation cost distortions, witnesses testified, had grown out of percentage increases fully effective on nonferrous metals but applied with "hold down maximums" to iron, steel and aluminum. For example, Charles A. Butler, New York, general traffic manager for Anaconda Copper Mining Co., presented figures to show that since June, 1946, the rate increase on manganese had been more than three times the increase on magniferous iron ore.

If the proposed increase is allowed, he said, domestic manganese from Anaconda, Mont., will have to carry \$10.03 more transportation charge per gross ton to get to Pittsburgh than will imports moving from the port of Baltimore to the same point.

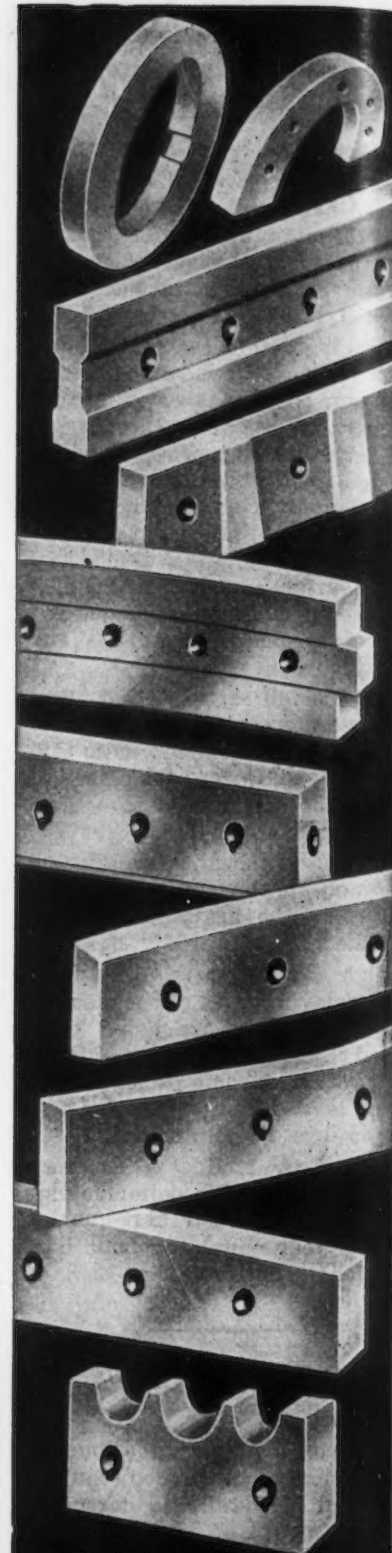
Steel Industry Payroll Sets February Record

New York

• • • The February payroll of the iron and steel industry, estimated at \$189,751,000, was the highest on record for that month and was 13 pct higher than in February, 1948, according to American Iron & Steel Institute.

The estimated employment in February set a postwar record of 652,800, an increase of 2600 persons over January, previous high month.

Earnings of hourly, piecework and tonnage workers averaged \$1.696 per hr compared with \$1.712 in January and \$1.551 in February, 1948. These workers averaged 40.1 hr a week in February, compared with 38.9 in January.



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